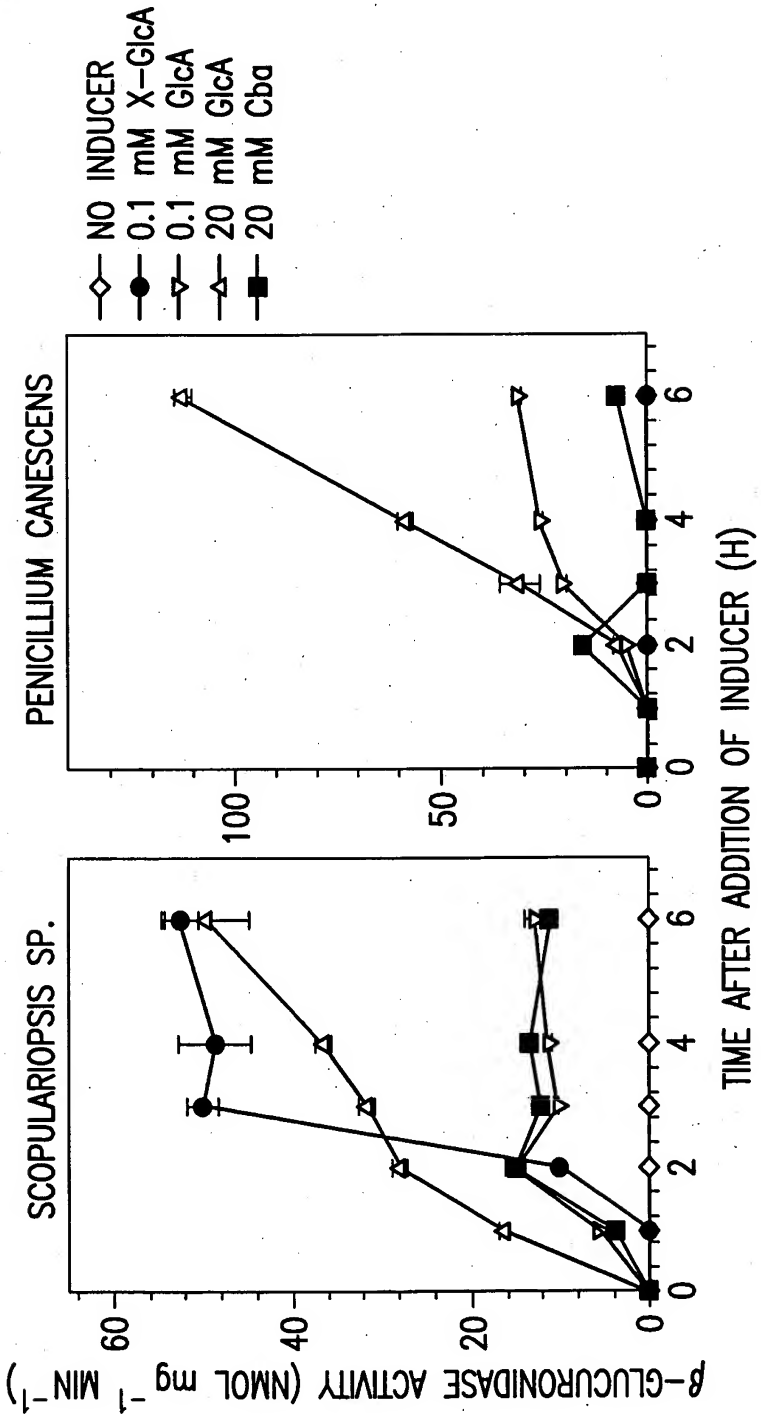

FIG. 1

Socpulariopsis sp. isolate RP38.3

```
                                                                  (dA)22
   1  GATATTGAGA GCACTTTTCT CTTGTATGTG GATGAGGAAG GGCGACGAAA TGAAAAAAAA AAAAAAAAAA
  71  AAAAGCCGGA GTTGACAAAC CCTGGCCTCG GCTTACCATA CACTAAAGTG ATAGATCTGG ATGTCACATT
 141  ATACGTGACG ATCTCCGGGG TCTATTCCGC TGTTCATTAC CATTCAGTCG GAAAAGTCTG GTGCACTGGC
            (dA)8
 211  CTTGCGAACA AAAAAAATGC TGTCGTGTGT TACCCGACTA CCATGCTTCT ACTCATTTTT CGGCGATTTC
 281  GGAATCCAGT ATGCGGGGAC GGACTGTAAG TTGTAAGAAA GTTCTGACAA ATACAGAAAA TCCGGGGAGT
 351  GGAAGTTCAA TTGAATGTGG AGAAGAAATG CGAGTGTCCA GATGGGGGAA TCTTGTAGAC TCTGCAAAGA
 421  GCAGAAGTGC GGAAAACACG GAGAAGAGGA GGGCGGAGAC TGCGGATAAG ACAAAGGGTA AGTGATCTTC
 491  GAGGTGTGTC TATTCGGGAA TAGTGTACAT CATAGGCGAC CTCATAGGGA AACCACCGAG TCAAACCCAT
        TATAbox                  (dA)10                              ------>
 561  GACTATATGA AGGAGCGACG ATCTCGAAAA AAAAAAGAGA AGAGCACAAC ACCTCCAGCC AGAGCAACCT
                                      M  R  L  S  N     I  P  L     L  R  P     W  A  A  L
 631  GAGCCGTCAA CTCCCTGCTT GTCCATCATG CGCCTCTCTA ATATCCCCCT TCTGCGCCCT TGGGCCGCTC
        S  L  A  T  L  I  G  L  S  S  G  A  D  T  D  Q  W  K  T  L  K  P  Q
 701  TGTCCCTAGC CACCCTCATC GGCCTGTCCT CTGGTGCCGA CACTGACCAA TGGAAGACGC TCAAGCCCCA
        A  N  A  I  R  E  L  L  S  L  D  G  T  W  N  F  A  L  P  Q  S  R  E
 771  AGCTAATGCT ATTCGGGAGC TACTCTCCCT TGATGGTACC TGGAACTTTG CCCTCCCGCA ATCACGCGAA
        I  E  E  D  Q  G  W  T  S  V  I  P  P  K  L  Q  I  P  V  P  A  S  Y  N
 841  ATTGAGGAAG ACCAGGGCTG GACTAGCGTT ATTCCACCCA AACTGCAAAT CCCAGTGCCC GCCAGCTACA
        D  I  F  T  D  P  A  I  R  N  N  V  G  W  A  Y  Y  Q  R  H  A  I  V
 911  ACGACATCTT CACCGATCCG GCGATCCGGA ACAACGTTGG CTGGGCATAC TATCAGCGCC ACGCCATTGT
        P  Q  T  W  S  E  G  R  Y  Y  V  R  F  D  S  V  T  H  E  A  K  V  Y
 981  CCCCCAGACC TGGTCTGAGG GACGCTACTA TGTTCGCTTC GACTCTGTTA CGCACGAGGC CAAGGTCTAC
        V  N  D  E  E  V  G  G  H  V  G  G  Y  T  P  F  E  V  D  L  T  D  L  V
1051  GTCAACGACG AGGAAGTCGG AGGCCATGTC GGTGGATATA CTCCCTTCGA GGTTGACCTG ACCGACCTTG
```

FIG.2A

```
      S  P  G  E  Q  F  R  L  T  V  A  V  N  N  I  L  T  W  Q  T  I  P  P
1121  TGTCGCCCGG AGAGCAGTTC CGCCTGACTG TTGCTGTCAA CAATATCCTG ACTTGGCAGA CCATCCCCCC
      G  E  V  V  T  N  E  A  G  K  L  R  Q  D  Y  N  H  D  F  Y  N  Y  A
1191  TGGTGAGGTC GTGACCAACG AGGCTGGTAA GCTTCGACAG GACTACAACC ACGACTTCTA CAACTACGCT
      G  I  A  R  S  V  S  L  Y  S  V  P  D  V  H  V  S  D  V  T  V  T  T  E
1261  GGAATTGCAC GTTCCGTCTC GCTATACTCC GTGCCTGATG TTCATGTTAG CGACGTCACT GTTACTACCG
      N  D  D  E  G  N  E  G  T  V  N  Y  S  V  E  T  S  G  S  N  D  T  Q
1331  AGAACGACGA CGAGGGCAAC GAGGGCACCG TCAACTACTC TGTCGAGACC AGCGGGTCTA ACGACACTCA
      A  R  V  T  L  I  D  E  D  G  N  E  V  A  E  A  S  E  L  E  G  S  L
1401  GGCTAGGGTC ACTTTGATTG ATGAGGACGG CAACGAGGTC GCCGAGGCAT CGGAGCTGGA GGGGAGCTTG
      N  V  S  P  V  N  L  W  Q  P  G  A  A  Y  L  Y  T  L  R  V  E  L  L  S
1471  AACGTGAGCC CCGTGAATCT CTGGCAGCCG GGCGCGGCGT ACCTCTACAC TCTTCGCGTT GAACTCCTTT
      D  D  T  V  V  D  T  Y  D  L  P  V  G  V  R  S  V  R  V  E  G  N  Q
1541  CGGACGATAC CGTCGTCGAC ACTTATGATT TACCGGTTGG TGTACGGTCC GTTAGGGTTG AAGGAAACCA
      F  L  I  N  G  K  P  F  Y  F  T  G  F  G  K  H  E  D  S  P  V  R  G
1611  GTTCCTCATC AACGGCAAGC CCTTCTACTT CACCGGCTTT GGCAAGCACG AGGACAGCCC CGTCCGCGGA
      K  G  Y  D  P  A  Y  M  I  H  D  F  E  L  M  K  W  M  G  A  N  S  F  R
1681  AAGGGCTACG ACCCGGCCTA CATGATCCAT GATTTTGAGC TCATGAAGTG GATGGGCGCC AACTCCTTCC
      T  S  H  Y  P  Y  A  E  E  V  M  E  Y  A  D  R  H  G  I  V  V  I  D
1751  GGACCTCCCA CTACCCCTAC GCCGAGGAGG TCATGGAGTA CGCCGACCGT CACGGCATCG TCGTCATCGA
      E  V  A  A  V  G  L  N  L  G  I  S  A  G  L  R  G  D  E  P  P  K  T
1821  CGAGGTCGCC GCCGTCGGTC TGAACCTGGG CATCAGCGCA GGCCTCAGGG GAGATGAGCC GCCCAAGACC
      F  T  E  D  K  V  N  N  E  T  Q  K  T  H  A  Q  A  L  R  E  L  I  H  R
1891  TTCACGGAGG ACAAGGTTAA CAACGAGACG CAAAAGACAC ACGCCCAGGC CCTCCGTGAG TTGATCCACC
      D  K  N  H  A  S  V  V  S  W  C  V  T  N  E  P  A  S  A  E  D  G  A
1961  GTGACAAGAA CCACGCCTCC GTTGTCAGCT GGTGCGTCAC CAACGAGCCC GCCTCCGCCG AGGACGGTGC
      R  E  Y  F  Q  P  L  V  E  L  T  R  E  L  D  P  T  R  P  V  T  F  T
2031  CCGCGAGTAC TTCCAGCCCC TGGTCGAGCT AACCCGCGAG CTGGACCCCA CCCGCCCCGT CACCTTCACC
      N  V  M  G  A  T  V  D  K  C  L  I  S  D  L  F  D  F  L  S  L  N  R  Y
2101  AACGTCATGG GCGCCACCGT CGACAAGTGC CTCATCTCCG ATCTTTTCGA CTTCCTTTCT CTCAACCGCT
```

FIG.2B

```
      Y  G  W  Y  V  Q  T  G  D  L  E  S  A  E  V  A  M  E  E  E  L  L  Q
2171  ACTACGGGTG GTACGTCCAA ACGGGCGACC TGGAGTCCGC CGAGGTCGCC ATGGAGGAGG AGCTCCTCCA
      W  V  D  E  Y  D  K  P  I  I  M  S  E  Y  G  A  D  T  L  A  G  L  H
2241  GTGGGTCGAC GAGTATGACA AGCCTATCAT CATGTCCGAG TACGGCGCCG ACACCCTGGC CGGTCTCCAC
      A  V  D  E  V  L  W  S  E  E  Y  Q  T  N  L  L  R  M  S  H  K  V  F  D
2311  GCGGTCGACG AGGTGCTCTG GTCCGAGGAG TACCAGACCA ACCTCCTGCG CATGTCGCAC AAGGTCTTTG
      S  I  D  S  I  V  G  E  H  V  W  N  F  A  D  F  Q  T  P  H  T  G  V
2381  ACAGCATTGA CTCCATTGTT GGCGAGCACG TGTGGAACTT TGCTGATTTC CAGACTCCTC ATACTGGTGT
      N  R  V  D  G  N  K  K  G  V  F  T  R  E  R  R  P  K  A  A  A  H  E
2451  CAACCGTGTT GATGGAAACA AGAAGGGTGT GTTTACGCGT GAGCGGAGGC CTAAGGCCGC GGCACATGAG
      L  K  R  R  W  L  D  E  G  F  P  K  L  G  N  G  T  S  G  A  *
2521  CTCAAGAGGC GGTGGCTGGA CGAGGGGTTC CCGAAGCTGG GGAACGGTAC TTCCGGTGCT TAAGTGGAGC
2591  ACGGGTATGA TAGGGTTTAA CTGCGAAGAT ACATAGGGCA GAGGTTTTAG TGACATACAC CTGTTGAGAT
2661  CTGGAATTTA CGCCGTATGA ATTGCTTGAT GACTTTATGC CAAGGACTTG TTGCGCATCT AATACTTTGT
2731  AGAAAGCTAG TCGCTGCCGT GATTGCGAAG GGGGCTTTAA GTCACCCAAC CTGGATCAAA GACATTATTC
2801  CACTATATCA CAACTTCATG AGTACGAGTG GGGATTGAAA GCAAACGGTC GCGGACTCTA CTCGGCAGCC
2871  GCGACTTCGG GCCAAGTTTG AGAAAAGGGC CATGTTTCGA GGTTATGATT CGGAAGTCTA TACATTAATA
2941  CAAGGTGCCC TGCTCTGTTA AACCCCCTCT CACTCGCTTT TTAAAGACGC ACAGGGCCAT TTTGTGCCCT
                                Poly(dA) signal   Poly(dA) site
3011  TAACTCTGAA GACGTTGTTA GAATAAAAGT GGTGGAGCCA GCTGCCTACG CCTAGTTGGC CAGTTCTCCA
3081  GTTCTCCACT TGCAAGCTAA TCCTGAGGAA AAGCTTGACG CGGTGAAACG CCGTTCCGTT CTGCGTGAGG
3151  TTTAGTATCC TAACTAAGCA CGTACGGTAA AATCTCGGCC GTGCCGTGCC ACCTTGTTTG GATCGTCACG
3221  AACTCGTAAA ATCCCGCACT TGATTTTACT TAAAACGAGA CCTTTTACAT TCTGGAGTTG ATACCCCGGC
3291  GTATCCGCCA ACGTCGTNCN NNNCTTTTGN CCCTCATACA GGGCCGTTAC AAGCC
```

FIG.2C

Penicillium canescens isolate RPK

```
   1  GCCAAGCTCA TCAGTCACCG ATGAAAAACT ACTCAATTGC CGATGCATCG TCTGGGAAAC TATATAAATG
                                                TATA box       TATA box
  71  CCTAAGTGCA GCCAGATATA ATACCCTCAT CAACTTATAC TAATTCATTA AATAAACAGT GGCTTTGTTA
      ---------->            M  K  F  L  T  G  L  S  L  L  S  L  A  G  P  S
 141  ATTACCCTTT AATAAAGCGG CAATGAAATT CCTTACGGGA TTGTCGCTGC TGTCTCTTGC TGGTCCATCG
      L  G  T  P  A  A  R  H  F  P  R  N  E  M  T  Q  H  E  Q  P  L  I  K  V
 211  TTGGGTACAC CTGCAGCTCG GCACTTTCCA CGCAATGAAA TGACCCAACA TGAACAGCCC TTGATCAAAG
        R  P  Q  R  T  S  S  R  E  L  V  N  L  D  G  L  W  K  F  A  L  A  S
 281  TCAGGCCCCA ACGAACTTCA TCTCGAGAGC TTGTGAACCT TGATGGTCTA TGGAAATTCG CCCTCGCATC
        G  L  N  D  T  A  Q  P  W  T  A  P  L  P  K  G  L  E  C  P  V  P  A
 351  TGGCCTCAAT GACACGGCCC AACCGTGGAC AGCGCCATTA CCCAAAGGTC TTGAATGTCC AGTCCCGGCC
      S  Y  N  D  I  F  I  S  R  E  I  H  D  H  V  G  W  V  Y  Y  Q  R  E  V
 421  TCTTACAACG ACATCTTCAT CAGCCGGGAG ATTCACGACC ATGTGGGATG GGTTTACTAT CAGCGTGAGG
        I  V  P  K  G  W  S  Q  E  R  Y  L  V  R  A  E  S  A  T  H  H  G  R
 491  TCATTGTCCC CAAAGGCTGG TCTCAGGAGC GATATCTCGT GCGAGCCGAA TCCGCTACGC ACCATGGTCG
        I  Y  V  N  N  R  L  V  A  E  H  V  G  X  Y  T  P  F  E  A  D  V  T
 561  CATCTATGTC AACAACCGGC TTGTTGCCGA GCATGTGGGC NGCTATACAC CTTTTGAAGC GGACGTCACT
      E  L  V  A  P  G  E  K  F  R  L  T  I  G  V  N  N  E  L  T  H  E  T  I
 631  GAATTAGTCG CCCCCGGAGA GAAATTTCGC TTGACGATTG GTGTCAACAA CGAGCTTACC CATGAGACTA
        P  P  G  K  I  T  T  G  N  A  T  G  K  R  I  Q  T  Y  Q  H  D  F  Y
 701  TCCCACCTGG AAAAATCACG ACAGGGAACG CGACTGGCAA GAGAATCCAG ACCTATCAAC ATGACTTTTA
        N  Y  A  G  L  A  R  S  I  W  L  Y  S  V  P  Q  Q  H  I  Q  D  I  T
 771  CAACTATGCT GGTCTCGCCC GATCTATCTG GCTTTATTCT GTACCCCAGC AACATATCCA GGATATTACT
      V  V  T  D  V  D  G  D  N  G  L  I  N  Y  E  V  E  V  A  N  Q  T  T  G
 841  GTGGTTACAG ATGTTGATGG TGACAATGGT CTGATTAACT ACGAGGTCGA AGTGGCGAAC CAGACGACGG
```

FIG.3A

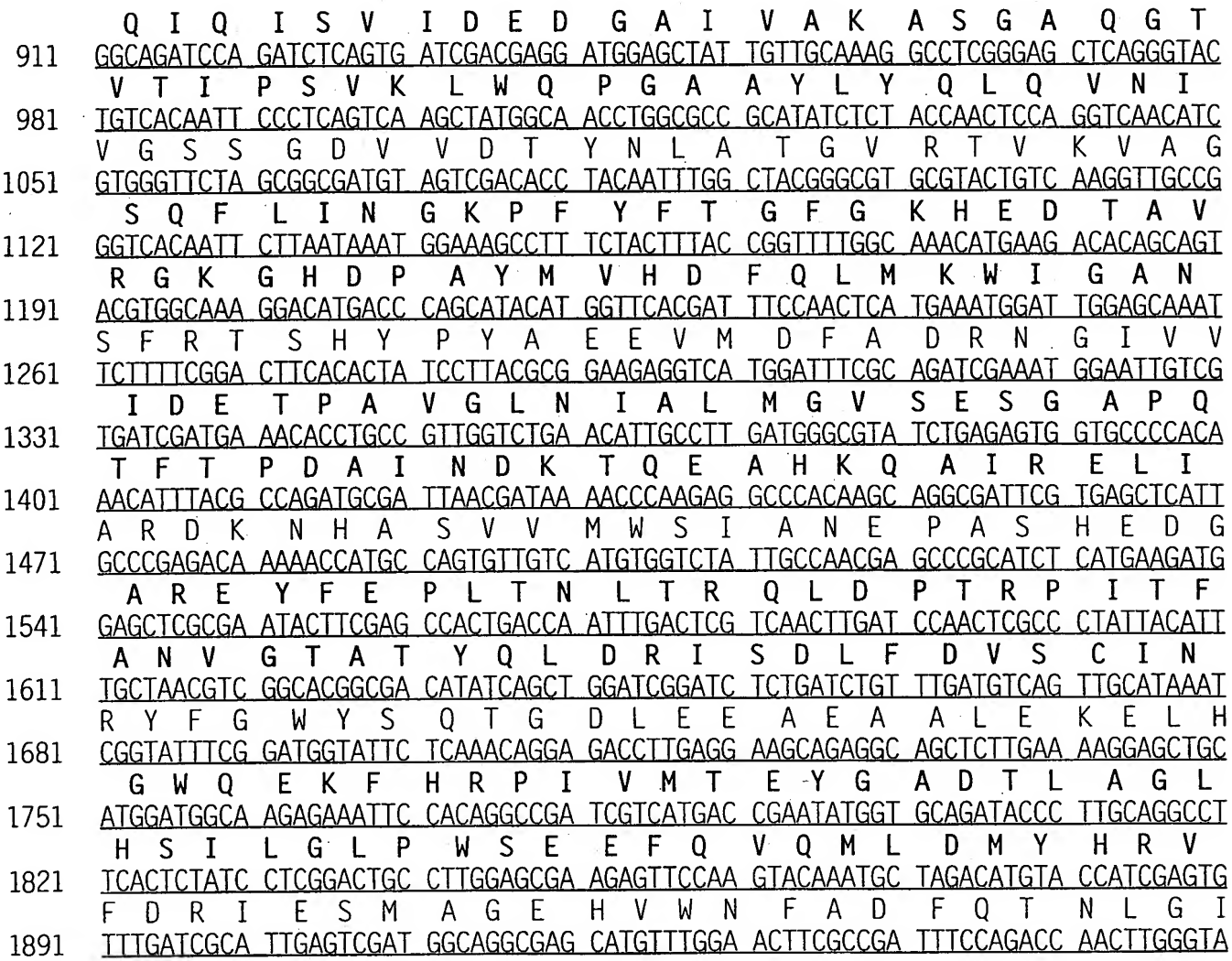
Q I Q I S V I D E D G A I V A K A S G A Q G T
911 GGCAGATCCA GATCTCAGTG ATCGACGAGG ATGGAGCTAT TGTTGCAAAG GCCTCGGGAG CTCAGGGTAC
V T I P S V K L W Q P G A A Y L Y Q L Q V N I
981 TGTCACAATT CCCTCAGTCA AGCTATGGCA ACCTGGCGCC GCATATCTCT ACCAACTCCA GGTCAACATC
V G S S G D V V D T Y N L A T G V R T V K V A G
1051 GTGGGTTCTA GCGGCGATGT AGTCGACACC TACAATTTGG CTACGGGCGT GCGTACTGTC AAGGTTGCCG
S Q F L I N G K P F Y F T G F G K H E D T A V
1121 GGTCACAATT CTTAATAAAT GGAAAGCCTT TCTACTTTAC CGGTTTTGGC AAACATGAAG ACACAGCAGT
R G K G H D P A Y M V H D F Q L M K W I G A N
1191 ACGTGGCAAA GGACATGACC CAGCATACAT GGTTCACGAT TTCCAACTCA TGAAATGGAT TGGAGCAAAT
S F R T S H Y P Y A E E V M D F A D R N G I V V
1261 TCTTTTCGGA CTTCACACTA TCCTTACGCG GAAGAGGTCA TGGATTTCGC AGATCGAAAT GGAATTGTCG
I D E T P A V G L N I A L M G V S E S G A P Q
1331 TGATCGATGA AACACCTGCC GTTGGTCTGA ACATTGCCTT GATGGGCGTA TCTGAGAGTG GTGCCCCACA
T F T P D A I N D K T Q E A H K Q A I R E L I
1401 AACATTTACG CCAGATGCGA TTAACGATAA AACCCAAGAG GCCCACAAGC AGGCGATTCG TGAGCTCATT
A R D K N H A S V V M W S I A N E P A S H E D G
1471 GCCCGAGACA AAAACCATGC CAGTGTTGTC ATGTGGTCTA TTGCCAACGA GCCCGCATCT CATGAAGATG
A R E Y F E P L T N L T R Q L D P T R P I T F
1541 GAGCTCGCGA ATACTTCGAG CCACTGACCA ATTTGACTCG TCAACTTGAT CCAACTCGCC CTATTACATT
A N V G T A T Y Q L D R I S D L F D V S C I N
1611 TGCTAACGTC GGCACGGCGA CATATCAGCT GGATCGGATC TCTGATCTGT TTGATGTCAG TTGCATAAAT
R Y F G W Y S Q T G D L E E A E A A L E K E L H
1681 CGGTATTTCG GATGGTATTC TCAAACAGGA GACCTTGAGG AAGCAGAGGC AGCTCTTGAA AAGGAGCTGC
G W Q E K F H R P I V M T E Y G A D T L A G L
1751 ATGGATGGCA AGAGAAATTC CACAGGCCGA TCGTCATGAC CGAATATGGT GCAGATACCC TTGCAGGCCT
H S I L G L P W S E E F Q V Q M L D M Y H R V
1821 TCACTCTATC CTCGGACTGC CTTGGAGCGA AGAGTTCCAA GTACAAATGC TAGACATGTA CCATCGAGTG
F D R I E S M A G E H V W N F A D F Q T N L G I
1891 TTTGATCGCA TTGAGTCGAT GGCAGGCGAG CATGTTTGGA ACTTCGCCGA TTTCCAGACC AACTTGGGTA

FIG.3B

```
        I  R  V   D  G  N   K  K  G  V   F  T  R   D  R  K   P  K  A  A   A  H  S
1961    TCATCCGAGT AGACGGTAAC AAGAAGGGTG TTTTCACCCG TGACCGAAAG CCAAAGGCGG CAGCTCATAG
        L  R  A   R  W  T   S  I  D  K   N  *
2031    TTTGAGGGCA AGGTGGACTA GTATTGATAA GAATTAAGGA ATTGACATAC TGCCAAATAC AAATGTTTGG
2101    CCTCACATTA CAAAACTATA TGCAATTAAA TGTACTGAAG ATTCGAGGGG TCGACCACTG ACAATGGAAC
2171    AAAATGTGCT TAACAGACGT AAGTCTGGAT TCTACTTGAA CAGACGTAAG TCTGGATTCT ACTTGATTGG
2241    ACTGCTTGTC ATATGTTCCA AATCGTATCG TAAACATTAT TGAAAATGGC CAGGAGACAG CGTGGAAAGA
2311    AAGGACAACA GTCTGGAAGA CAAGTTCGGA TGCGCGGATT CCTCGAAGCT CCCCTTGCAA AACTCATTAC
2381    TGGGCCCCTC CATACAACAT TAAGCGCTAT CATGATCTTC TCTACAAAGG GCCTCTGCCC AGGTGGACTG
                                                                  Poly(dA) signal
2451    CCTTCTCTGA GGATGTGGAG CGGGTCTACT TCCATCAAGT CCTCATCAAT AGAGCTATAT ACGATATTGG
              Poly(dA) site
2521    ACGAGCGGCA GAAGGCAACG AGACAATCAA CGAGTTCGTG GCTGTAGTCC AAGAGTCTGT CGGCGTTCAG
2591    AGCTGTTTCA TGCACTCAAT CGGAACGG
```

FIG.3C

Penicillium canescens strain DSM1215

MetLysPheLeuThrArgLeuSerLeuLeuSerLeuAlaAlaPro
ATGAAATTTCTTACGCGATTGTCGCTGCTATCTCTTGCTGCTCCA

SerLeuGlyThrProAlaAlaArgHisPheProArgAsnGluMet
TCGTTGGGTACACCTGCAGCTCGGCACTTTCCACGCAATGAAATG

XaaGlnAsnGleGlnProLeuIleLysIleArgProGlnArgThr
ATCCAAAATGAACAGCCCTTGATCAAAATCAGGCCCCAACGAACT

SerSerArgAspLeuValAsnLeuAspGlyLeuTrpLysPheAla
TCATCTCGAGACCTTGTGAACCTTGATGGTCTATGGAAATTCGCC

LeuAlaSerGlyProAsnAspThrAlaGlnProTrpThrAlaPro
CTCGCATCTGGCCCCAATGACACGGCCCAGCCGTGGACAGCGCCA

LeuProLysGlyLeuGluCysProValProAlaSerTyrAsnAsp
TTACCCAAAGGTCTTGAATGTCCAGTCCCGGCCTCTTACAATGAC

IlePheIleSerArgGluIleHisAspHisValGlyTrpValTyr
ATTTTCATCAGCCGGGAGATCCACGACCATGTGGGATGGGTTTAC

TyrGlnArgGluValIleValProLysGlyTrpSerGlnGluArg
TATCAGCGTGAGGTCATTGTCCCCAAAGGCTGGTCTCAGGAGCGA

TyrLeuValArgAlaGluSerAlaThrHisHisGlyArgIleTyr
TATCTTGTGCGAGCCGAATCCGCTACACACCATGGTCGCATCTAT

ValAsnAsnArgLeuValAlaGluHisValGlyGlyTyrThrPro
GTCAACAACCGGCTTGTTGCGGAGCATGTGGGCGGCTATACACCT

PheGluAlaAspIleThrAspLeuValValProGlyGluLysPhe
TTTGAAGCCGACATCACTGATTTGGTCGTCCCTGGAGAGAAATTT

ArgLeuThrIleGlyValAsnAsnGluLeuThrHisGluThrIle
CGTTTGACGATTGGTGTCAACAACGAGCTTACCCATGAGACTATC

ProProGlyGluIleThrThrAlaAsnAlaThrGlyLysArgIle
CCACCAGGAGAAATCACAACAGCGAACGCGACTGGCAAGAGAATC

GlnThrTyrGlnHisAspPheTyrAsnTyrAlaGlyLeuAlaArg
CAGACCTATCAACATGACTTTTACAACTATGCCGGTCTCGCCCGA

SerIleTrpLeuTyrSerValProGlnGlnHisIleGlnAspIle
TCTATCTGGCTTTATTCTGTACCCCAGCAACATATCCAGGATATT

FIG.4A

```
ThrValValThrAspValAspGlyAspAsnGlyLeuIleAsnTyr
ACTGTGGTTACAGATGTTGATGGTGACAATGGTCTGATCAACTAC

GluValGluValAlaAsnGlnThrThrGlyGlnIleGlnIleSer
GAGGTCGAAGTGGCGAACCAGACGACGGGGCAGATCCAGATCTCA

ValIleAspGluAspGlyAlaIleValAlaAsnAlaSerGlyAla
GTGATCGACGAGGATGGAGCTATTGTTGCAAATGCCTCGGGAGCT

GlnGlyThrValThrIleProSerValLysLeuTrpGlnProGly
CAGGGTACTGTCACAATTCCCTCAGTCAAGCTATGGCAACCTGGC

AlaAlaTyrLeuTyrGlnLeuGlnValAsnValValAspSerSer
GCCGCATATCTCTACCAACTCCAGGTCAACGTCGTGGATTCTAGC

GlyAspValValAspThrTyrAsnLeuAlaThrGlyValArgThr
GGCGATGTAGTCGACACCTATAATTTGGCTACGGGCGTGCGTACT

ValLysIleSerGlySerGlnPheLeuIleAsnGlyLysProPhe
GTCAAGATTTCCGGGTCACAATTCTTGATAAACGGCAAGCCTTTC

TyrPheThrGlyPheGlyArgHisGluAspThrAlaValArgGly
TACTTTACCGGTTTTGGCAGGCATGAAGACACAGCAGTACGTGGC

LysGlyHisAspProAlaTyrMetValHisAspPheGlnLeuMet
AAAGGACATGACCCAGCATATATGGTTCACGATTTCCAACTCATG

LysTrpIleGlyAlaAsnSerPheArgThrSerHisXaaProTyr
AAATGGATTGGAGCAAATTCTTTCCGGACTTCACACTACCCTTAT

AlaGluGluValMetAspPheAlaAspArgAsnGlyIleValVal
GCAGAAGAGGTCATGGATTTCGCAGATCGAAATGGAATTGTCGTG

IleAspGluThrProAlaValGlyLeuAsnIleAlaLeuMetGly
ATCGATGAAACTCCTGCCGTGGGTCTGAACATTGCCTTGATGGGT

ValSerGluSerGlyAlaProGlnThrPheThrProAspGlyIle
GTATCTGAGAGTGGTGCCCCACAAACATTTACGCCAGATGGGATT

AsnAspLysThrGlnGluAlaHisLysGlnAlaIleArgGluLeu
AACGATAAGACCCAAGAGGCCCACAAACAGGCGATTCGTGAGCTC

IleAlaArgAspLysAsnHisAlaSerValValMetTrpSerIle
ATTGCCCGAGACAAAAACCATGCCAGTGTTGTCATGTGGTCTATT
```

FIG.4B

AlaAsnGluProAlaSerGlnGluAspGlyAlaArgGluTyrPhe
GCCAATGAGCCTGCATCTCAGGAAGATGGGGCTCGCGAATACTTC

GluProLeuAlaAsnLeuThrArgGlnLeuAspProThrArgPro
GAGCCACTGGCCAATTTGACTCGTCAGCTTGATCCAACTCGCCCT

IleThrPheAlaAsnValGlyAlaAlaThrTyrGlnLeuAspArg
ATTACATTTGCTAATGTCGGCGCTGCAACATATCAGCTAGATCGG

IleSerAspLeuPheAspValSerCysIleAsnArgTyrPheGly
ATCTCTGATCTGTTTGATGTTAGTTGCATAAATCGGTATTTCGGA

TrpTyrSerGlnThrGlyAspLeuGluGluAlaGluAlaAlaLeu
TGGTATTCTCAGACAGGAGACCTTGAGGAAGCAGAGGCAGCTCTT

GluLysGluLeuArgGlyTrpGlnGluLysPheHisArgProIle
GAAAAGGAGTTGCGTGGGTGGCAAGAGAAATTCCACAGGCCGATC

IleMetSerGluTyrGlyAlaAspThrLeuAlaGlyLeuHisSer
ATTATGAGCGAATATGGTGCAGATACCCTTGCAGGTCTTCATTCT

IleLeuAlaLeuProTrpSerGluGluPheGlnValGlnMetLeu
ATCCTCGCACTGCCTTGGAGCGAAGAGTTCCAGGTACAAATGCTA

AspMetTyrHisArgValPheAspArgIleGluSerMetAlaGly
GACATGTACCATCGAGTGTTTGATCGCATTGAGTCGATGGCAGGC

GluHisValTrpAsnPheAlaAspPheGlnThrAsnLeuGlyVal
GAGCATGTTTGGAACTTCGCGGATTTCCAGACCAACTTGGGTGTC

IleArgValAspGlyAsnLysLysGlyValPheThrArgAspArg
ATCCGAGTAGATGGTAACAAGAAGGGTGTTTTCACGCGTGACCGA

LysProLysAlaAlaAlaHisSerLeuArgAlaArgTrpThrAsn
AAGCCAAAGGCGGCAGCTCATAGTTTGAGGGCAAGGTGGACGAAT

GlyAspLysAsn
GGTGATAAGAATTAG

FIG.4C

Giberella zeae

ATGTTGCGACCACAAGCCAACAGGGCTCGCGACCTTGTGTCACTAGACGGTGTTTGGAACTTTGCCCTCGCCA
AATCTCACGACATTGAAACTGAGCAAGCATGGAAGAAGCGAATCTCACCAGAGCTTCAAGTACCTGTTCCAGC
CAGCTACAACGACATCTTTGCTGACGAGACCATCCGCGACCACGTCGGCTGGGTCTACTATCAGCGTCAAGCA
GTTGTTCCCCGCGGTTGGGTTGCGCCTCAGCGTGTCTTTCTACGTGTAGATGCTGCAACCCACCACGGCAGAG
TTTACGTCAACGACAAGTTTGTCGTCGAGCATATCGGCGGCTATACACCGTTTGAGATTGAGCTTACTGGACT
TGTCGAACCGGGGTCAGAGTTTCGTCTTACGATTGCTGTGAACAATCAACTCACATGGGAGACTATTCCGCCG
GGTCGCATTGAGGCTCAAAGTGATGGTTCGCGGAAGCAGAGCTATCAGCATGACTTTTTCAACTATGCTGGAT
TGGCCCGTTCTGTGTGGCTTTACTCGGTACCAAAGGTCTTTATAAATGATATCAGCGTCGGCACAGATCTTCT
TGGGGACGGAACCGGCATTGTCGAATTTGATATTCGGACCTCTGGTGAACTTCAGGCTGACGCAAGATGGCGC
ATCCTGCTCGACGACGAAGAGGATGCGACAGTGTGTCAAGCCCAAGAGTCACATGGAAAACTTGAGGTTAAAA
ACGCTAAATACTGGGCACCTGGTGCTGCGTACCTTTATCAGCTTCGGGCTCAGCTCGTACGCGGCGAACACGA
CGAGATCCTCGACACATATAACCTTGCCGTAGGCATCCGTTCAGTCGAGATCCGAGATGGCCGCTTCTTCATC
AACGGGAAGCCATTTTATTTTACCGGCTTTGGCAAACACGAAGATGGCCCCGTCCGTGGACGCGGTTATGACG
CGTCATACATGATACACGACTACCGTCTGATGAAGTGGATAGGAGCCAACTCTTTCCGAACCTCCCACTACCC
CTACGCAGAGGAGGTTCTGGAATATGCCGACAGACACGGCGTGGTTGTTATTAACGAAACAGCCGCCGTTGGT
CTCAACCTCAATATTGTCTCGGGTATGTTTGGCAACAAGCAACTTGCCACATTCTCCCCGGATACCATGAGTA
GCAAAACACAGGCTTCACATGAACAAGCTATCCGTGAGCTTATCAGCCGGGATAAGAACCACCCTTGTGTTGT
GATGTGGATGCTGGCAAATGAGCCTGGGGCCAGCGAGCAGGGAAGTCGAGAATACTTTGAACCGCTCGTTACC
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ATCGCATCGCAGACCTTTTTGATGTAGTCTGTATGAACCGCTACTACGGGTGGTACACGCAAACAGGAAACCT
CAAAGCCGCAGAAGTCGCCCTTGAAGCCGAGCTACGCAGTTGGCAAGAAGCCTACGCCGCCAAACCCATAATC
ATGACGGAATATGGCACCGACACAGTCGCAGGTCTGCACACCGTTTGTGATGTGCCCTGGACTGAAGAGTACC
AGGTTCGCTTTTTGGACATGTATCACCGCGTCTTTGACCGCATTGATAATGTCGTCGGCGAGCATGTGTGGAA
CTTTGCTGATTTCCAGACATCGGCTATGATTATTAGGGTTGATGGGAACAAGAAGGGTATCTTTACTAGGGAT
CGCAGGCCAAAGAGTGCAGCTCATGCTTTGCGAGCGAGATGGACTGGGCCTGTTGGACCTCGCAAGATAGAGG
TGACCAAGCAATAA

MLRPQANRARDLVSLDGVWNFALAKSHDIETEQAWKKRISPELQVPVPASYNDIFADETIRDHVGWVYYQRQA
VVPRGWVAPQRVFLRVDAATHHGRVYVNDKFVVEHIGGYTPFEIELTGLVEPGSEFRLTIAVNNQLTWETIPP
GRIEAQSDGSRKQSYQHDFFNYAGLARSVWLYSVPKVFINDISVGTDLLGDGTGIVEFDIRTSGELQADARWR
ILLDDEEDATVCQAQESHGKLEVKNAKYWAPGAAYLYQLRAQLVRGEHDEILDTYNLAVGIRSVEIRDGRFFI
NGKPFYFTGFGKHEDGPVRGRGYDASYMIHDYRLMKWIGANSFRTSHYPYAEEVLEYADRHGVVVINETAAVG
LNLNIVSGMFGNKQLATFSPDTMSSKTQASHEQAIRELISRDKNHPCVVMWMLANEPGASEQGSREYFEPLVT
LARSLDSQKRPMCYSHMIHSKPDTDRIADLFDVVCMNRYYGWYTQTGNLKAAEVALEAELRSWQEAYAAKPII
MTEYGTDTVAGLHTVCDVPWTEEYQVRFLDMYHRVFDRIDNVVGEHVWNFADFQTSAMIIRVDGNKKGIFTRD
RRPKSAAHALRARWTGPVGPRKIEVTKQ

FIG.5

Aspergillus nidulans

ATGAGGGTCTTCCCAGTGTTATCTTTCTTGTCACTCGCACTCATCCCTCCCTCGCTCGGCGTCCCGTCGCCTC
AGCTCCGCGACGTCGAGCTCCCGCCAACACAACAAGCCCTAACCATCAACCTGAAACCCCAGCAGACGTCGAC
GAGAGACCTCGTTTCTCTCGACGGGCTGTGGTCCTTTGCCCTCGAAGACGCCACAAACAGCACCTCTGCTCCC
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CCATTCACGATCACGTCGGCTGGGTATACTACCAACGCACTGTGACTGTCCCACGGGGCTGGGCAGATCAGCG
CGCTTTCCTCCGTCTGGAGTCAGCAACGCATCATGGCCGCGTCTATGTCAATGAGCACCTGGTTGCCGAGCAT
GTTGGCGGTTACACCCCGTTTGAAGCCGACATTACCTCTCTCGTGCAGCCTGGTGAAAGCTTCCGGTTGACAA
TCGGTGTGGACAACCAGCTGACGCACGAGACCATCCCTCCAGGTGATCTGGTGACTTCTGAGTATACAGGGAA
GAAACAGCAGAGCTACCAGCACGACTTTTACAATTACGCAGGGCTGGCGAGGTCCATATGGCTCTACTCTGTG
CCCAAGGATCAGTTCATCAAGGACATCACGGTCGTTCCAGATGTTGATTGGGATGGTGACGCAGAGACCGGAG
TGGTGAGCTATACCGTCCAGACTTCTAACGCGACGAGTGGCCCCATCCGGATCTCAATTCTCGATGAAGAAGG
AAACGAGGTCGCAACAGCGTCCGGAGCCACTGGGACAGCTACCATTCCCTCTGTCAACCTCTGGCAGCCTGGC
GCTCCCTACCTATACTCCTTCACTGTCAGCATCCTCTCCGCCTCCCAACGGCTGATCGACACATACACACTGC
CCATCGGTATCCGCACTGTGGCTGTCGGCAACGGCACTATCCTGGTCAACAATGAGCCGGTCTACCTGACCGG
GTTTGGCAAACACGAGGATAGTCCCATCCGCGGCAAAGGCCACGACATCGCGTACCTAGTCCACGACTTCCAG
CTGCTGGACTGGATCGGCGCGAACTCTTTCCGCACCAGCCACTATCCTTACGCGGAAGAGGTGATGGAATTTG
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GCTCTCCGGGAACTCATTGCACGGGACAAGAACCACCCCAGCGTTATCATGTGGTCGATCGCGAACGAACCCG
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CCGGCCCATAACTTTCGCCAACCTCGGCCTGGCAACCTATGAAACCGACACAATCTCTGACTTGTTCGATGTT
CTCTGCCTGAACCGATATTTCGGCTGGTACTCGTACACGGGAGACCTGGAGTCCGCCGGAAAGGCACTCCATG
AGGAACTGGACGGATGGGTGGCCAAGTACCCGACCAAACCAATCATCATCAGCGAGTACGGGGCAGACACAAT
GGCGGGACTGCACTCTGTGCTGGGACTGATCTGGAGCGAGGAGTTCCAAATCGAGTTGCTGGATGTGTATCAT
GGGGTGTTCGACCAGTTCCAGAATGTGGTTGGTGAGCATGTATGGAATTTCGCGGATTTCCAAACAAAGGAGG
GCATACAGCGGGTGGATGGGAACAAGAAGGGTGTCTTTACCAGAGACCGCAGACCCAAGGGGGCGGCGTTTGC
CTTGAGGAAGAGGTGGATGAATATGATGTCGAGTTAG

MRVFPVLSFLSLALIPPSLGVPSPQLRDVELPPTQQALTINLKPQQTSTRDLVSLDGLWSFALEDATNSTSAP
WTAALPKGLECPVPASYNDIFVDRTIHDHVGWVYYQRTVTVPRGWADQRAFLRLESATHHGRVYVNEHLVAEH
VGGYTPFEADITSLVQPGESFRLTIGVDNQLTHETIPPGDLVTSEYTGKKQQSYQHDFYNYAGLARSIWLYSV
PKDQFIKDITVVPDVDWDGDAETGVVSYTVQTSNATSGPIRISILDEEGNEVATASGATGTATIPSVNLWQPG
APYLYSFTVSILSASQRLIDTYTLPIGIRTVAVGNGTILVNNEPVYLTGFGKHEDSPIRGKGHDIAYLVHDFQ
LLDWIGANSFRTSHYPYAEEVMEFADRQGILVIDETPAVGLAYSIGAGISTDTSRVTFAPDGINNNTRAAHAQ
ALRELIARDKNHPSVIMWSIANEPASDEPGARAYFEPLTRLARSLDPAHRPITFANLGLATYETDTISDLFDV
LCLNRYFGWYSYTGDLESAGKALHEELDGWVAKYPTKPIIISEYGADTMAGLHSVLGLIWSEEFQIELLDVYH
GVFDQFQNVVGEHVWNFADFQTKEGIQRVDGNKKGVFTRDRRPKGAAFALRKRWMNMMSS

FIG.6

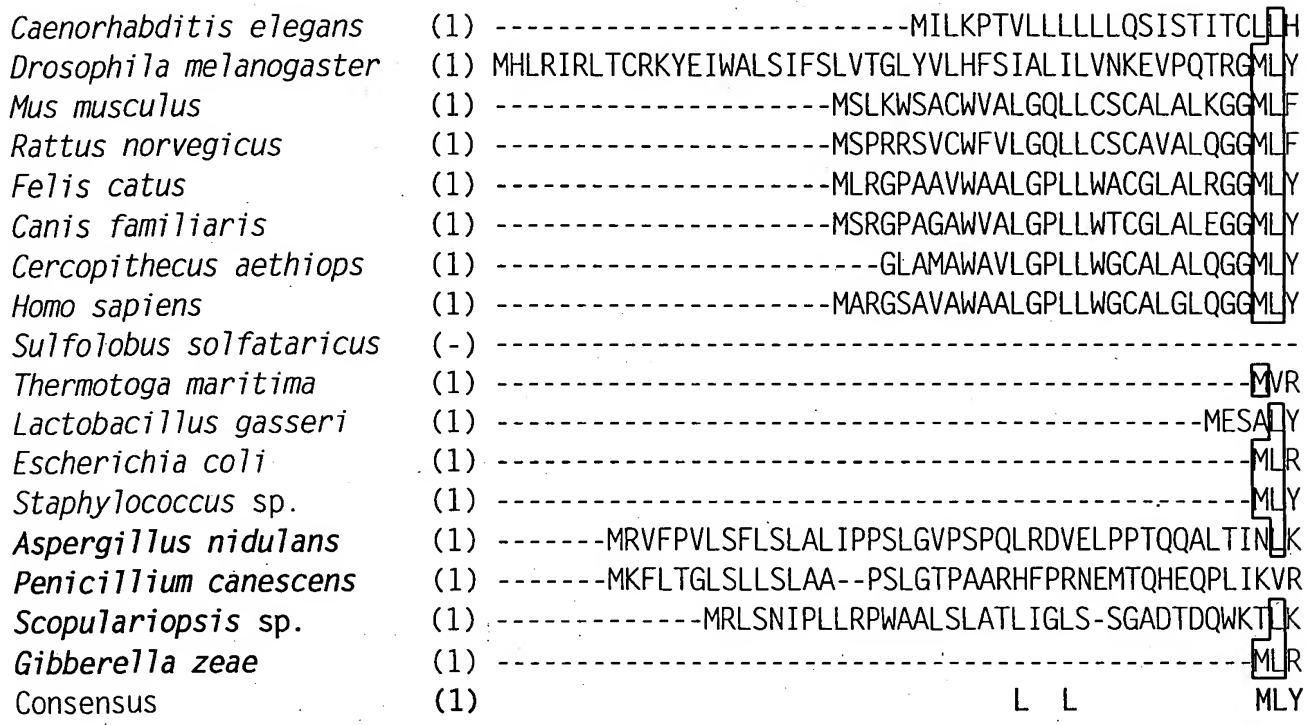

Caenorhabditis elegans (1) ----------MILKPTVLLLLLLQSISTITCLLH
Drosophila melanogaster (1) MHLRIRLTCRKYEIWALSIFSLVTGLYVLHFSIALILVNKEVPQTRGMLY
Mus musculus (1) ----------MSLKWSACWVALGQLLCSCALALKGGMLF
Rattus norvegicus (1) ----------MSPRRSVCWFVLGQLLCSCAVALQGGMLF
Felis catus (1) ----------MLRGPAAVWAALGPLLWACGLALRGGMLY
Canis familiaris (1) ----------MSRGPAGAWVALGPLLWTCGLALEGGMLY
Cercopithecus aethiops (1) ----------GLAMAWAVLGPLLWGCALALQGGMLY
Homo sapiens (1) ----------MARGSAVAWAALGPLLWGCALGLQGGMLY
Sulfolobus solfataricus (-) ----------
Thermotoga maritima (1) ----------MVR
Lactobacillus gasseri (1) ----------MESALY
Escherichia coli (1) ----------MLR
Staphylococcus sp. (1) ----------MLY
Aspergillus nidulans (1) -------MRVFPVLSFLSLALIPPSLGVPSPQLRDVELPPTQQALTINLK
Penicillium canescens (1) -------MKFLTGLSLLSLAA--PSLGTPAARHFPRNEMTQHEQPLIKVR
Scopulariopsis sp. (1) ----------MRLSNIPLLRPWAALSLATLIGLS-SGADTDQWKTLK
Gibberella zeae (1) ----------MLR
Consensus (1) L L MLY

FIG.7A

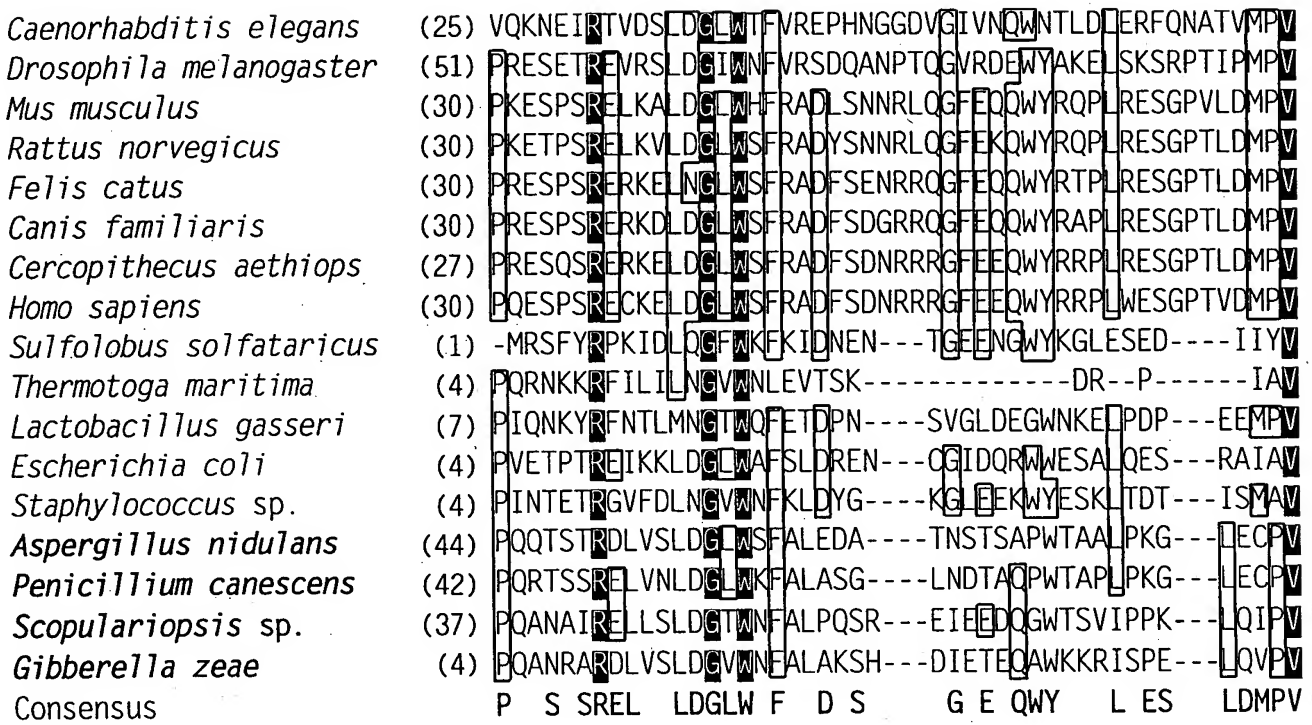

Caenorhabditis elegans (25) VQKNEIRTVDSLDGLWTFVREPHNGGDVGIVNQWNTLDLERFQNATVMPV
Drosophila melanogaster (51) PRESETREVRSLDGIWNFVRSDQANPTQGVRDEWYAKELSKSRPTIPMPV
Mus musculus (30) PKESPSRELKALDGLWHFRADLSNNRLQGFEQQWYRQPLRESGPVLDMPV
Rattus norvegicus (30) PKETPSRELKVLDGLWSFRADYSNNRLQGFEKQWYRQPLRESGPTLDMPV
Felis catus (30) PRESPSRERKELNGLWSFRADFSENRRQGFEQQWYRTPLRESGPTLDMPV
Canis familiaris (30) PRESPSRERKDLDGLWSFRADFSDGRRQGFEQQWYRAPLRESGPTLDMPV
Cercopithecus aethiops (27) PRESQSRERKELDGLWSFRADFSDNRRRGFEEQWYRRPLRESGPTLDMPV
Homo sapiens (30) PQESPSRECKELDGLWSFRADFSDNRRRGFEEQWYRRPLWESGPTVDMPV
Sulfolobus solfataricus (1) -MRSFYRPKIDLQGFWKFKIDNEN---TGEENGWYKGLESED----IIYV
Thermotoga maritima (4) PQRNKKRFILILNGVWNLEVTSK----------DR--P------IAV
Lactobacillus gasseri (7) PIQNKYRFNTLMNGTWQFETDPN----SVGLDEGWNKELPDP---EEMPV
Escherichia coli (4) PVETPTREIKKLDGLWAFSLDREN---QGIDQRWWESALQES---RAIAV
Staphylococcus sp. (4) PINTETRGVFDLNGVWNFKLDYG----KGLEEKWYESKLTDT---ISMAV
Aspergillus nidulans (44) PQQTSTRDLVSLDGLWSFALEDA----TNSTSAPWTAALPKG---LECPV
Penicillium canescens (42) PQRTSSRELVNLDGLWKFALASG----LNDTAQPWTAPLPKG---LECPV
Scopulariopsis sp. (37) PQANAIRELLSLDGTWNFALPQSR---EIEEDQGWTSVIPPK---LQIPV
Gibberella zeae (4) PQANRARDLVSLDGVWNFALAKSH---DIETEQAWKKRISPE---LQVPV
Consensus P S SREL LDGLW F D S G E QWY L ES LDMPV

FIG.7B

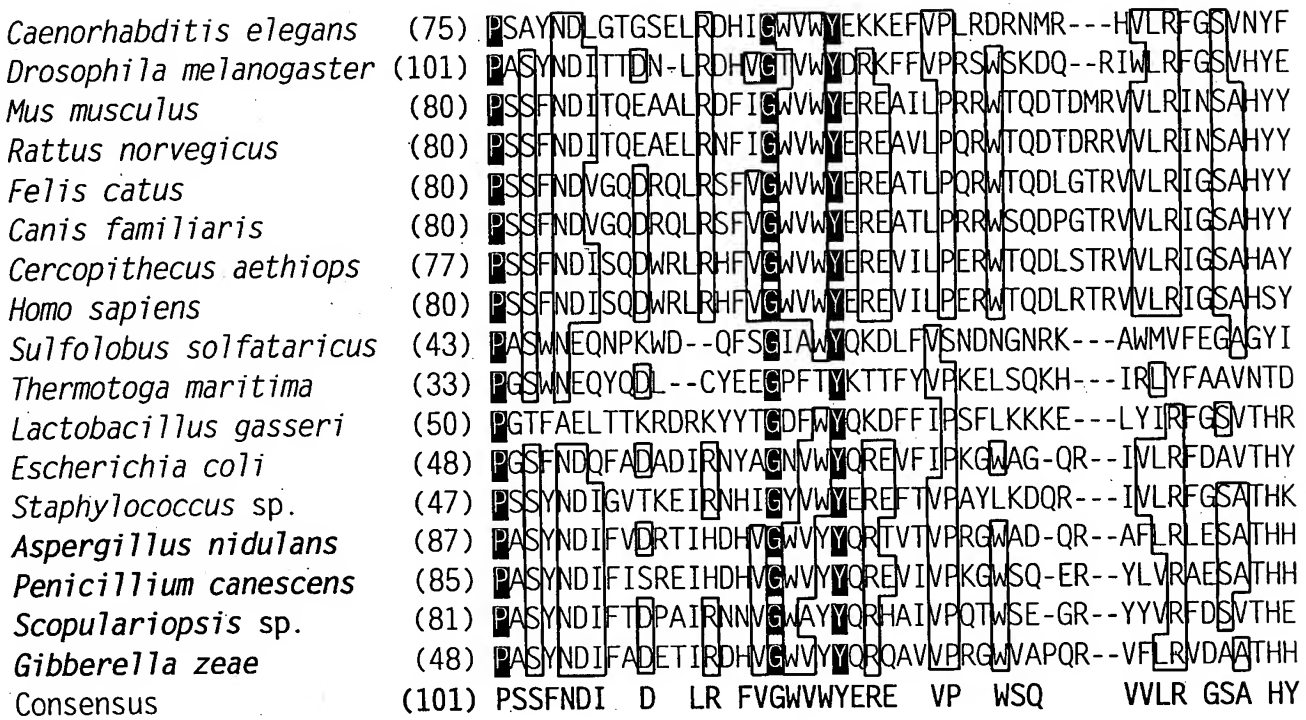

Caenorhabditis elegans (75) PSAYNDLGTGSELRDHIGWVWYEKKEFVPLRDRNMR---HVLRFGSVNYF
Drosophila melanogaster (101) PASYNDITTDN-LRDHVGTVWYDRKFFVPRSWSKDQ--RIWLRFGSVHYE
Mus musculus (80) PSSFNDITQEAALRDFIGWVWYEREAILPRRWTQDTDMRVVLRINSAHYY
Rattus norvegicus (80) PSSFNDITQEAELRNFIGWVWYEREAVLPQRWTQDTDRRVVLRINSAHYY
Felis catus (80) PSSFNDVGQDRQLRSFVGWVWYEREATLPQRWTQDLGTRVVLRIGSAHYY
Canis familiaris (80) PSSFNDVGQDRQLRSFVGWVWYEREATLPRRWSQDPGTRVVLRIGSAHYY
Cercopithecus aethiops (77) PSSFNDISQDWRLRHFVGWVWYEREVILPERWTQDLSTRVVLRIGSAHAY
Homo sapiens (80) PSSFNDISQDWRLRHFVGWVWYEREVILPERWTQDLRTRVVLRIGSAHSY
Sulfolobus solfataricus (43) PASWNEQNPKWD--QFSGIAWYQKDLFVSNDNGNRK---AWMVFEGAGYI
Thermotoga maritima (33) PGSWNEQYQDL--CYEEGPFTYKTTFYVPKELSQKH---IRLYFAAVNTD
Lactobacillus gasseri (50) PGTFAELTTKRDRKYYTGDFWYQKDFFIPSFLKKKE---LYIRFGSVTHR
Escherichia coli (48) PGSFNDQFADADIRNYAGNVWYQREVFIPKGWAG-QR--IVLRFDAVTHY
Staphylococcus sp. (47) PSSYNDIGVTKEIRNHIGYVWYEREFTVPAYLKDQR---IVLRFGSATHK
Aspergillus nidulans (87) PASYNDIFVDRTIHDHVGWVYYQRTVTVPRGWAD-QR--AFLRLESATHH
Penicillium canescens (85) PASYNDIFISREIHDHVGWVYYQREVIVPKGWSQ-ER--YLVRAESATHH
Scopulariopsis sp. (81) PASYNDIFTDPAIRNNVGWAYYQRHAIVPQTWSE-GR--YYVRFDSVTHE
Gibberella zeae (48) PASYNDIFADETIRDHVGWVYYQRQAVVPRGWVAPQR--VFLRVDAATHH
Consensus (101) PSSFNDI D LR FVGWVWYERE VP WSQ VVLR GSA HY

FIG.7C

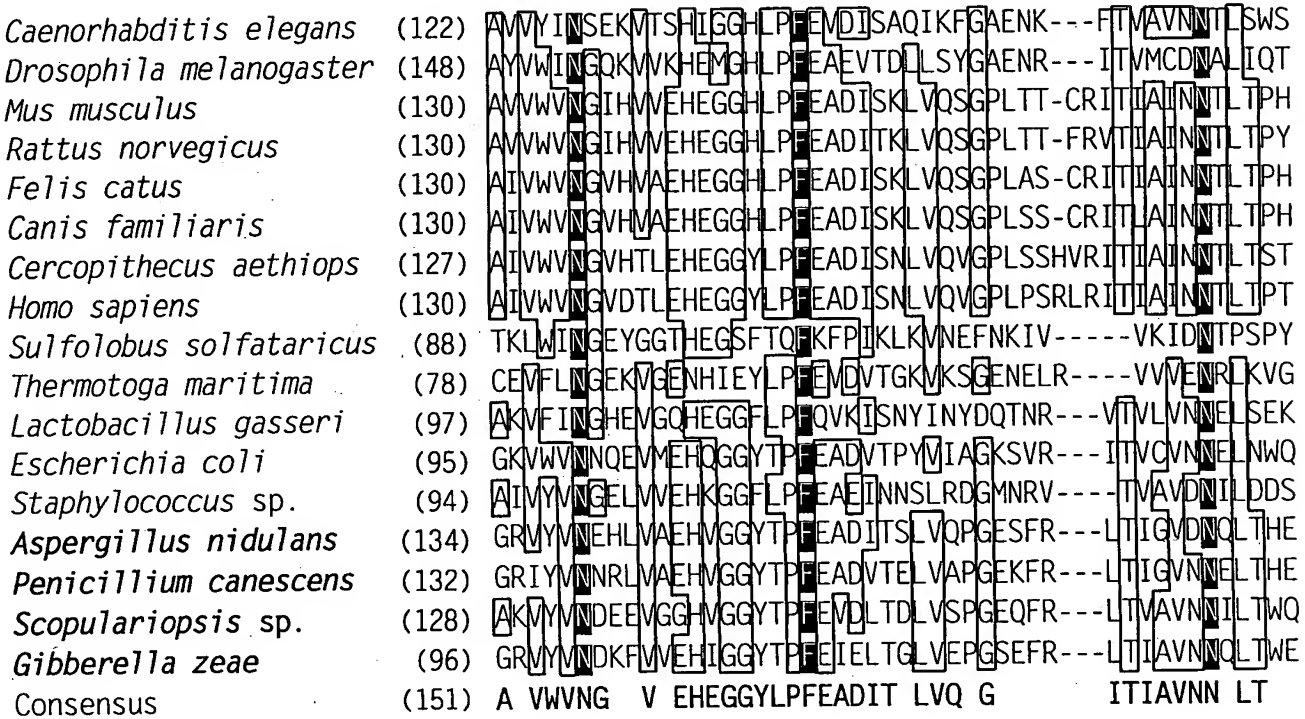

Caenorhabditis elegans (122) AMVYINSEKMTSHIGGHLPFEMDISAQIKFGAENK---FTMAVNNTLSWS
Drosophila melanogaster (148) AYVWINGQKVVKHEMGHLPFEAEVTDLLSYGAENR---ITVMCDNALIQT
Mus musculus (130) AMVWVNGIHVVEHEGGHLPFEADISKLVQSGPLTT-CRITIAINNTLTPH
Rattus norvegicus (130) AMVWVNGIHVVEHEGGHLPFEADITKLVQSGPLTT-FRVTIAINNTLTPY
Felis catus (130) AIVWVNGVHMAEHEGGHLPFEADISKLVQSGPLAS-CRITIAINNTLTPH
Canis familiaris (130) AIVWVNGVHMAEHEGGHLPFEADISKLVQSGPLSS-CRITLAINNTLTPH
Cercopithecus aethiops (127) AIVWVNGVHTLEHEGGYLPFEADISNLVQVGPLSSHVRITIAINNTLTST
Homo sapiens (130) AIVWVNGVDTLEHEGGYLPFEADISNLVQVGPLPSRLRITIAINNTLTPT
Sulfolobus solfataricus (88) TKLWINGEYGGTHEGSFTQFKFPIKLKVNEFNKIV-----VKIDNTPSPY
Thermotoga maritima (78) CEVFLNGEKVGENHIEYLPFEMDVTGKVKSGENELR----VVVENRLKVG
Lactobacillus gasseri (97) AKVFINGHEVGQHEGGFLPFQVKISNYINYDQTNR---VTVLVNNELSEK
Escherichia coli (95) GKVWVNNQEVMEHQGGYTPFEADVTPYVIAGKSVR---ITVCVNNELNWQ
Staphylococcus sp. (94) AIVYVNGELVVEHKGGFLPFEAEINNSLRDGMNRV----TVAVDNILDDS
Aspergillus nidulans (134) GRVYVNEHLVAEHVGGYTPFEADITSLVQPGESFR---LTIGVDNQLTHE
Penicillium canescens (132) GRIYVNNRLVAEHVGGYTPFEADVTELVAPGEKFR---LTIGVNNELTHE
Scopulariopsis sp. (128) AKVYVNDEEVGGHVGGYTPFEVDLTDLVSPGEQFR---LTVAVNNILTWQ
Gibberella zeae (96) GRVYVNDKFVVEHIGGYTPFEIELTGLVEPGSEFR---LTIAVNNQLTWE
Consensus (151) A VWVNG V EHEGGYLPFEADIT LVQ G ITIAVNN LT

FIG.7D

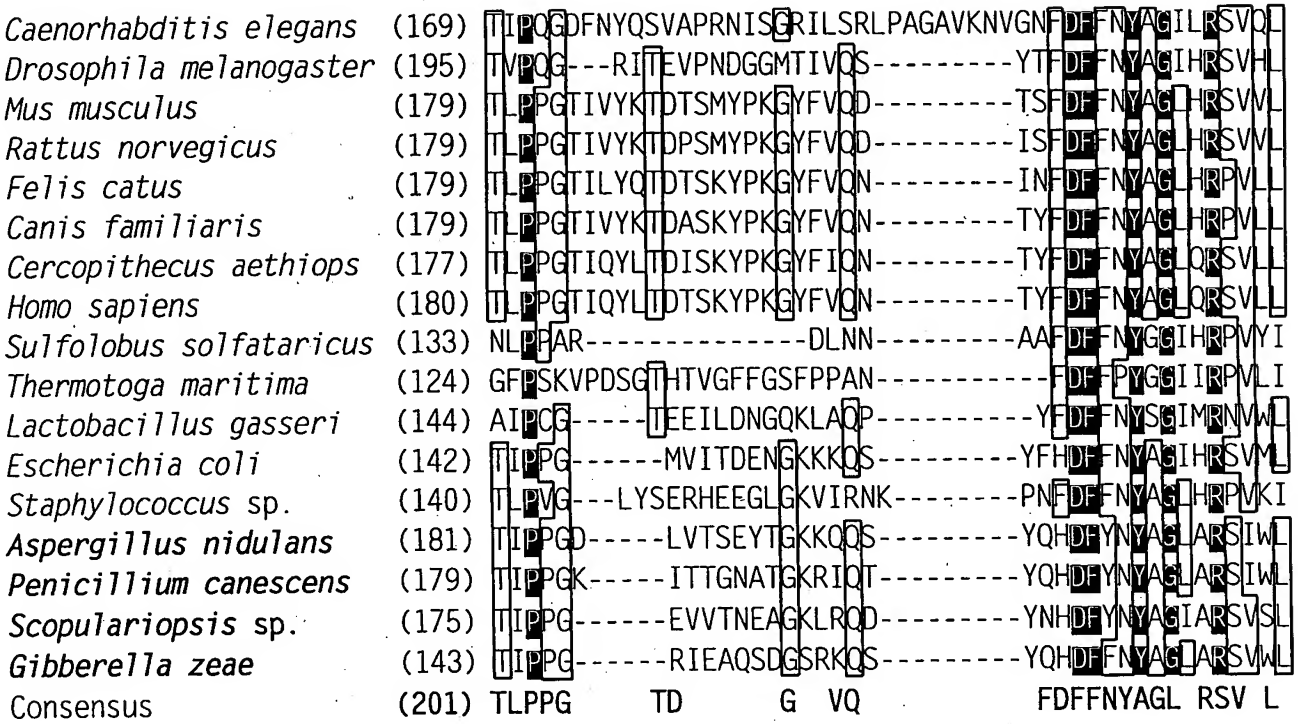

Caenorhabditis elegans (169) TIPQGDFNYQSVAPRNISGRILSRLPAGAVKNVGNFDFFNYAGILRSVQL
Drosophila melanogaster (195) TVPQG---RITEVPNDGGMTIVQS---------YTFDFFNYAGIHRSVHL
Mus musculus (179) TLPPGTIVYKTDTSMYPKGYFVQD---------TSFDFFNYAGLHRSVVL
Rattus norvegicus (179) TLPPGTIVYKTDPSMYPKGYFVQD---------ISFDFFNYAGLHRSVVL
Felis catus (179) TLPPGTILYQTDTSKYPKGYFVQN---------INFDFFNYAGLHRPVLL
Canis familiaris (179) TLPPGTIVYKTDASKYPKGYFVQN---------TYFDFFNYAGLHRPVLL
Cercopithecus aethiops (177) TLPPGTIQYLTDISKYPKGYFIQN---------TYFDFFNYAGLQRSVLL
Homo sapiens (180) TLPPGTIQYLTDTSKYPKGYFVQN---------TYFDFFNYAGLQRSVLL
Sulfolobus solfataricus (133) NLPPAR--------------DLNN---------AAFDFFNYGGIHRPVYI
Thermotoga maritima (124) GFPSKVPDSGTHTVGFFGSFPPAN----------FDFFPYGGIIRPVLI
Lactobacillus gasseri (144) AIPCG-----TEEILDNGQKLAQP----------YFDFFNYSGIMRNVWL
Escherichia coli (142) TIPPG------MVITDENGKKKQS---------YFHDFFNYAGIHRSVML
Staphylococcus sp. (140) TLPVG---LYSERHEEGLGKVIRNK--------PNFDFFNYAGLHRPVKI
Aspergillus nidulans (181) TIPPGD-----LVTSEYTGKKQQS---------YQHDFYNYAGLARSIWL
Penicillium canescens (179) TIPPGK-----ITTGNATGKRIQT---------YQHDFYNYAGLARSIWL
Scopulariopsis sp. (175) TIPPG------EVVTNEAGKLRQD---------YNHDFYNYAGIARSVSL
Gibberella zeae (143) TIPPG------RIEAQSDGSRKQS---------YQHDFFNYAGLARSVWL
Consensus (201) TLPPG TD G VQ FDFFNYAGL RSV L

FIG.7E

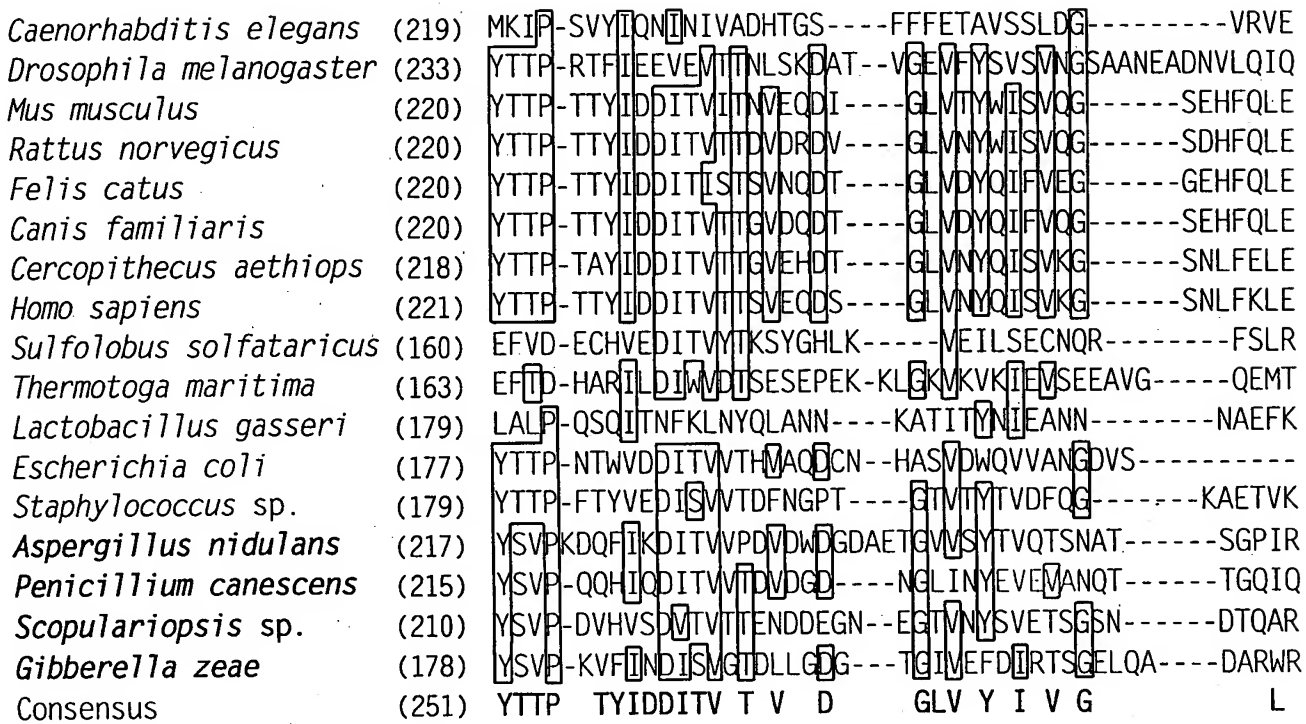

Caenorhabditis elegans (219) MKIP-SVYIQNINIVADHTGS----FFFETAVSSLDG---------VRVE
Drosophila melanogaster (233) YTTP-RTFIEEVEMTTNLSKDAT--VGEVFYSVSVNGSAANEADNVLQIQ
Mus musculus (220) YTTP-TTYIDDITVITNVEQDI----GLVTYWISVQG------SEHFQLE
Rattus norvegicus (220) YTTP-TTYIDDITVTTDVDRDV----GLVNYWISVQG------SDHFQLE
Felis catus (220) YTTP-TTYIDDITISTSVNQDT----GLVDYQIFVEG------GEHFQLE
Canis familiaris (220) YTTP-TTYIDDITVTTGVDQDT----GLVDYQIFVQG------SEHFQLE
Cercopithecus aethiops (218) YTTP-TAYIDDITVTTGVEHDT----GLVNYQISVKG------SNLFELE
Homo sapiens (221) YTTP-TTYIDDITVTTSVEQDS----GLVNYQISVKG------SNLFKLE
Sulfolobus solfataricus (160) EFVD-ECHVEDITVYTKSYGHLK-----VEILSECNQR--------FSLR
Thermotoga maritima (163) EFID-HARILDIWVDISESEPEK-KLGKVKVKIEVSEEAVG-----QEMT
Lactobacillus gasseri (179) LALP-QSQITNFKLNYQLANN----KATITYNIEANN--------NAEFK
Escherichia coli (177) YTTP-NTWVDDITVVTHVAQDCN--HASVDWQVVANGDVS----------
Staphylococcus sp. (179) YTTP-FTYVEDISVVTDFNGPT----GTVTTYTVDFQG--------KAETVK
Aspergillus nidulans (217) YSVPKDQFIKDITVVPDVDWDGDAETGVVSYTVQTSNAT------SGPIR
Penicillium canescens (215) YSVP-QQHIQDITVVTDVDGD----NGLINYEVEVANQT------TGQIQ
Scopulariopsis sp. (210) YSVP-DVHVSDVTVTTENDDEGN--EGTVNYSVETSGSN------DTQAR
Gibberella zeae (178) YSVP-KVFINDISVGTDLLGDG---TGIVEFDIRTSGELQA----DARWR
Consensus (251) YTTP TYIDDITV T V D GLV Y I V G L

FIG.7F

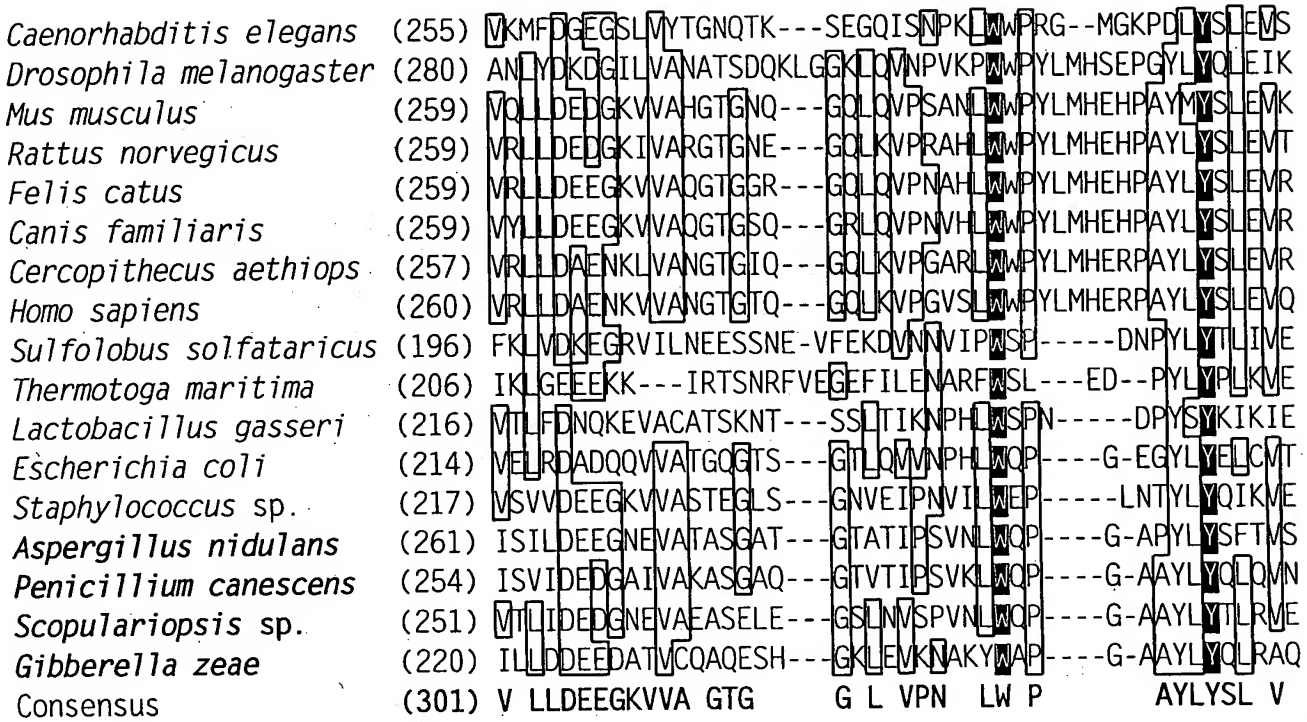

Caenorhabditis elegans (255) VKMFDGEGSLVYTGNQTK---SEGQISNPKLWWPRG--MGKPDLYSLEVS
Drosophila melanogaster (280) ANLYDKDGILVANATSDQKLGGKLQVNPVKPWWPYLMHSEPGYLYQLEIK
Mus musculus (259) VQLLDEDGKVVAHGTGNQ---GQLQVPSANLWWPYLMHEHPAYMYSLEVK
Rattus norvegicus (259) VRLLDEDGKIVARGTGNE---GQLKVPRAHLWWPYLMHEHPAYLYSLEVT
Felis catus (259) VRLLDEEGKVVAQGTGGR---GQLQVPNAHLWWPYLMHEHPAYLYSLEVR
Canis familiaris (259) VYLLDEEGKVVAQGTGSQ---GRLQVPNVHLWWPYLMHEHPAYLYSLEVR
Cercopithecus aethiops (257) VRLLDAENKLVANGTGIQ---GQLKVPGARLWWPYLMHERPAYLYSLEVR
Homo sapiens (260) VRLLDAENKVVANGTGTQ---GQLKVPGVSLWWPYLMHERPAYLYSLEVQ
Sulfolobus solfataricus (196) FKLVDKEGRVILNEESSNE-VFEKDVNNVIPWSP-----DNPYLYTLIVE
Thermotoga maritima (206) IKLGEEEKK---IRTSNRFVEGEFILENARFWSL---ED--PYLYPLKVE
Lactobacillus gasseri (216) VTLFDNQKEVACATSKNT---SSLTIKNPHLWSPN-----DPYSYKIKIE
Escherichia coli (214) VELRDADQQVVATGQGTS---GTLQVVNPHLWQP----G-EGYLYELCVT
Staphylococcus sp. (217) VSVVDEEGKVVASTEGLS---GNVEIPNVILWEP-----LNTYLYQIKVE
Aspergillus nidulans (261) ISILDEEGNEVATASGAT---GTATIPSVNLWQP----G-APYLYSFTVS
Penicillium canescens (254) ISVIDEDGAIVAKASGAQ---GTVTIPSVKLWQP----G-AAYLYQLQVN
Scopulariopsis sp. (251) VTLIDEDGNEVAEASELE---GSLNVSPVNLWQP----G-AAYLYTLRVE
Gibberella zeae (220) ILLDDEEDATVCQAQESH---GKLEVKNAKYWAP----G-AAYLYQLRAQ
Consensus (301) V LLDEEGKVVA GTG G L VPN LW P AYLYSL V

FIG.7G

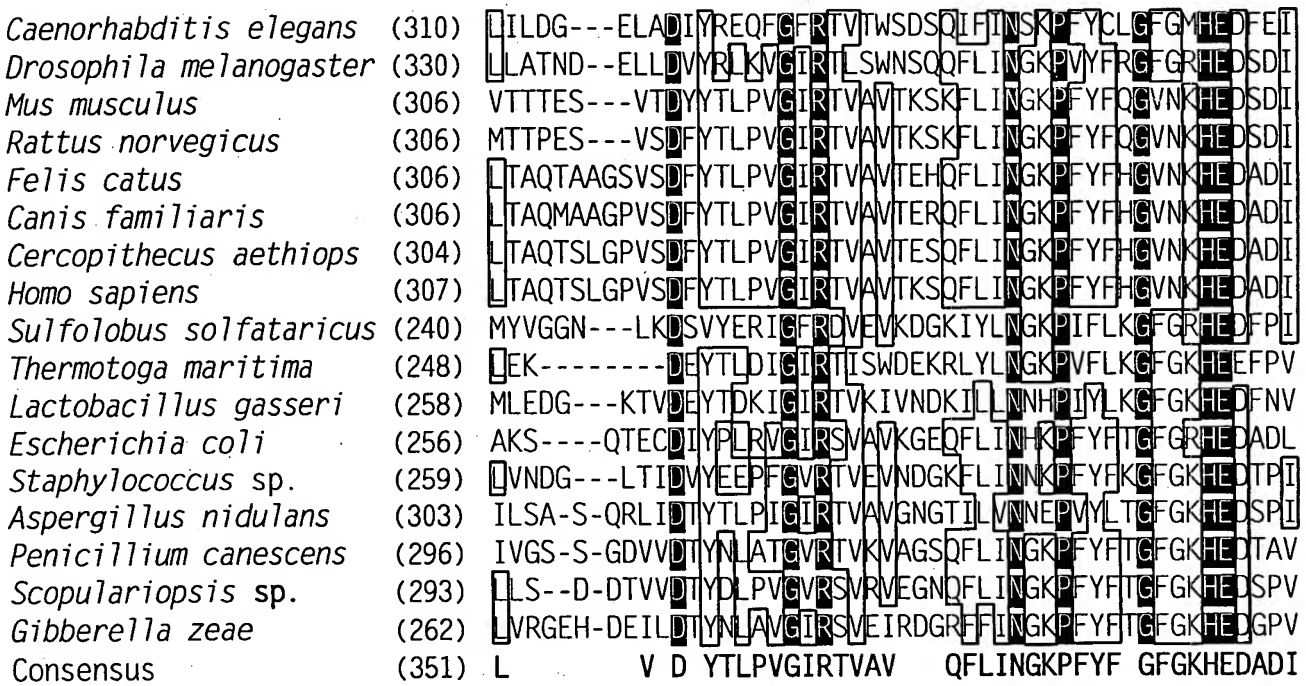

Caenorhabditis elegans (310) LILDG---ELADIYREQFGFRTVTWSDSQIFTNSKPFYCLGFGMHEDFEI
Drosophila melanogaster (330) LLATND--ELLDVYRLKVGIRTLSWNSQQFLINGKPVYFRGFGRHEDSDI
Mus musculus (306) VTTTES---VTDYYTLPVGIRTVAVTKSKFLINGKPFYFQGVNKHEDSDI
Rattus norvegicus (306) MTTPES---VSDFYTLPVGIRTVAVTKSKFLINGKPFYFQGVNKHEDSDI
Felis catus (306) LTAQTAAGSVSDFYTLPVGIRTVAVTEHQFLINGKPFYFHGVNKHEDADI
Canis familiaris (306) LTAQMAAGPVSDFYTLPVGIRTVAVTERQFLINGKPFYFHGVNKHEDADI
Cercopithecus aethiops (304) LTAQTSLGPVSDFYTLPVGIRTVAVTESQFLINGKPFYFHGVNKHEDADI
Homo sapiens (307) LTAQTSLGPVSDFYTLPVGIRTVAVTKSQFLINGKPFYFHGVNKHEDADI
Sulfolobus solfataricus (240) MYVGGN---LKDSVYERIGFRDVEVKDGKIYLNGKPIFLKGFGRHEDFPI
Thermotoga maritima (248) LEK--------DEYTLDIGIRTISWDEKRLYLNGKPVFLKGFGKHEEFPV
Lactobacillus gasseri (258) MLEDG---KTVDEYTDKIGIRTVKIVNDKILLNNHPIYLKGFGKHEDFNV
Escherichia coli (256) AKS----QTECDIYPLRVGIRSVAVKGEQFLINHKPFYFTGFGRHEDADL
Staphylococcus sp. (259) LVNDG---LTIDVYEEPFGVRTVEVNDGKFLINNKPFYFKGFGKHEDTPI
Aspergillus nidulans (303) ILSA-S-QRLIDTYTLPIGIRTVAVGNGTILVNNEPVYLTGFGKHEDSPI
Penicillium canescens (296) IVGS-S-GDVVDTYNLATGVRTVKVAGSQFLINGKPFYFTGFGKHEDTAV
Scopulariopsis sp. (293) LLS--D-DTVVDTYDLPVGVRSVRVEGNQFLINGKPFYFTGFGKHEDSPV
Gibberella zeae (262) LVRGEH-DEILDTYNLAVGIRSVEIRDGRFFINGKPFYFTGFGKHEDGPV
Consensus (351) L V D YTLPVGIRTVAV QFLINGKPFYF GFGKHEDADI

FIG.7H

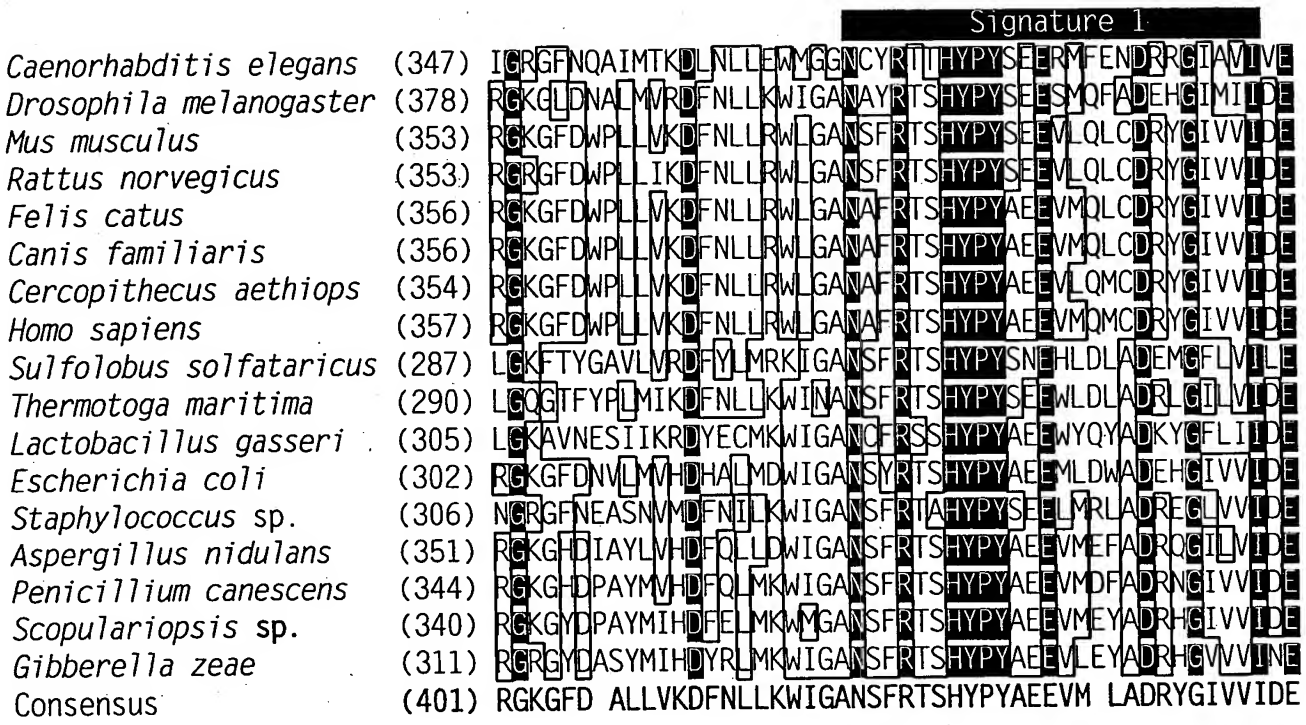

Signature 1
Caenorhabditis elegans (347)
Drosophila melanogaster (378)
Mus musculus (353)
Rattus norvegicus (353)
Felis catus (356)
Canis familiaris (356)
Cercopithecus aethiops (354)
Homo sapiens (357)
Sulfolobus solfataricus (287)
Thermotoga maritima (290)
Lactobacillus gasseri (305)
Escherichia coli (302)
Staphylococcus sp. (306)
Aspergillus nidulans (351)
Penicillium canescens (344)
Scopulariopsis sp. (340)
Gibberella zeae (311)
Consensus (401) RGKGFD ALLVKDFNLLKWIGANSFRTSHYPYAEEVM LADRYGIVVIDE

FIG. 7I

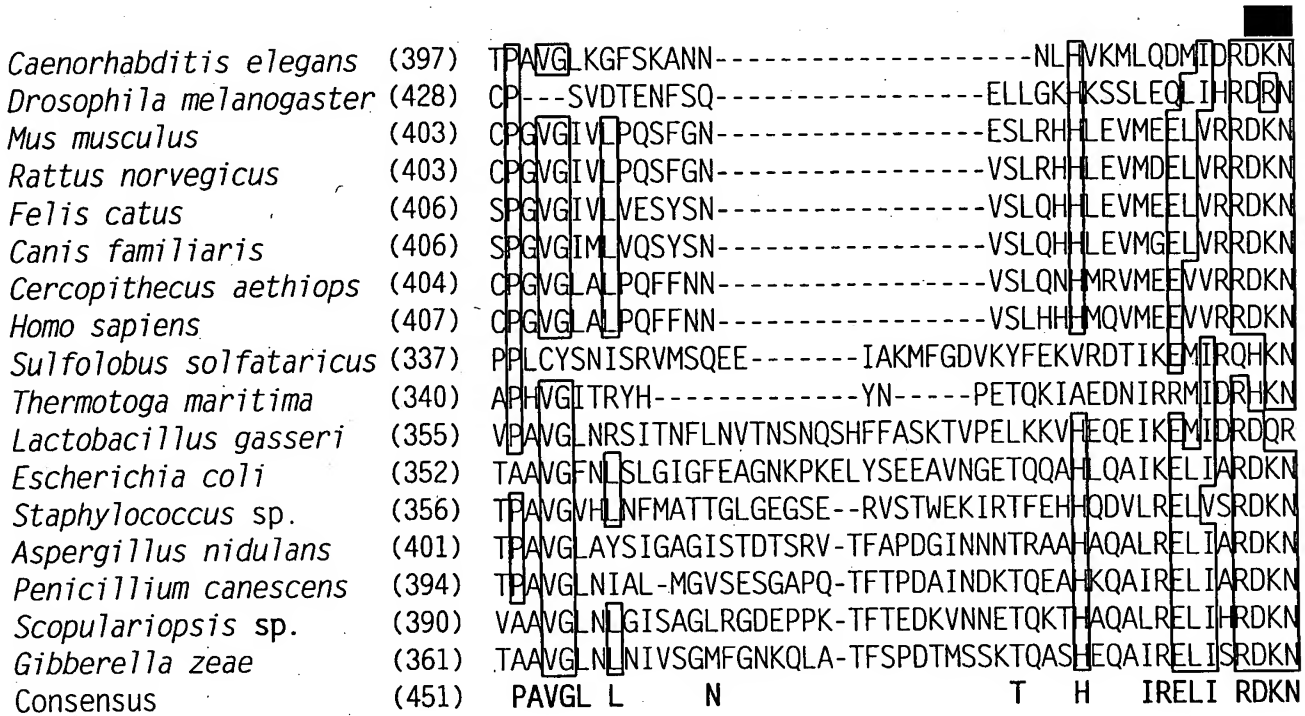

Caenorhabditis elegans (397) TPAVGLKGFSKANN----------NLHVKMLQDMIDRDKN
Drosophila melanogaster (428) CP---SVDTENFSQ----------ELLGKHKSSLEQLIHRDRN
Mus musculus (403) CPGVGIVLPQSFGN----------ESLRHHLEVMEELVRRDKN
Rattus norvegicus (403) CPGVGIVLPQSFGN----------VSLRHHLEVMDELVRRDKN
Felis catus (406) SPGVGIVLVESYSN----------VSLQHHLEVMEELVRRDKN
Canis familiaris (406) SPGVGIMLVQSYSN----------VSLQHHLEVMGELVRRDKN
Cercopithecus aethiops (404) CPGVGLALPQFFNN----------VSLQNHMRVMEEVVRRDKN
Homo sapiens (407) CPGVGLALPQFFNN----------VSLHHHMQVMEEVVRRDKN
Sulfolobus solfataricus (337) PPLCYSNISRVMSQEE-------IAKMFGDVKYFEKVRDTIKEMIRQHKN
Thermotoga maritima (340) APHVGITRYH----------YN-----PETQKIAEDNIRRMIDRHKN
Lactobacillus gasseri (355) VPAVGLNRSITNFLNVTNSNQSHFFASKTVPELKKVHEQEIKEMIDRDQR
Escherichia coli (352) TAAVGFNLSLGIGFEAGNKPKELYSEEAVNGETQQAHLQAIKELIARDKN
Staphylococcus sp. (356) TPAVGVHLNFMATTGLGEGSE--RVSTWEKIRTFEHHQDVLRELVSRDKN
Aspergillus nidulans (401) TPAVGLAYSIGAGISTDTSRV-TFAPDGINNNTRAAHAQALRELIARDKN
Penicillium canescens (394) TPAVGLNIAL-MGVSESGAPQ-TFTPDAINDKTQEAHKQAIRELIARDKN
Scopulariopsis sp. (390) VAAVGLNLGISAGLRGDEPPK-TFTEDKVNNETQKTHAQALRELIHRDKN
Gibberella zeae (361) TAAVGLNLNIVSGMFGNKQLA-TFSPDTMSSKTQASHEQAIRELISRDKN
Consensus (451) PAVGL L N T H IRELI RDKN

FIG.7J

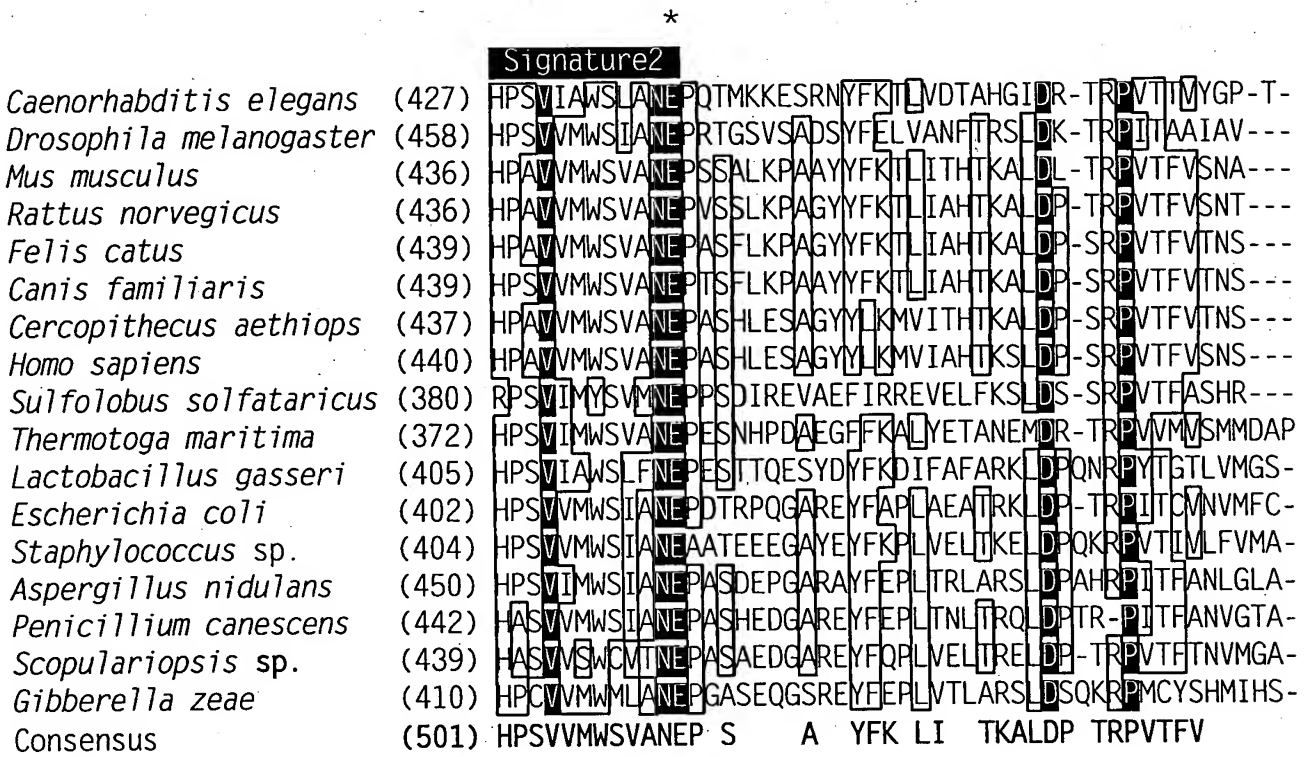

*
Signature2
Caenorhabditis elegans (427) HPSVIAWSLANEPQTMKKESRNYFKTLVDTAHGIDR-TRPVTTMYGP-T-
Drosophila melanogaster (458) HPSVVMWSIANEPRTGSVSADSYFELVANFTRSLDK-TRPITAAIAV---
Mus musculus (436) HPAVVMWSVANEPSSALKPAAYYFKTLITHTKALDL-TRPVTFVSNA---
Rattus norvegicus (436) HPAVVMWSVANEPVSSLKPAGYYFKTLIAHTKALDP-TRPVTFVSNT---
Felis catus (439) HPAVVMWSVANEPASFLKPAGYYFKTLIAHTKALDP-SRPVTFVTNS---
Canis familiaris (439) HPSVVMWSVANEPTSFLKPAAYYFKTLIAHTKALDP-SRPVTFVTNS---
Cercopithecus aethiops (437) HPAVVMWSVANEPASHLESAGYYLKMVITHTKALDP-SRPVTFVTNS---
Homo sapiens (440) HPAVVMWSVANEPASHLESAGYYLKMVIAHTKSLDP-SRPVTFVSNS---
Sulfolobus solfataricus (380) RPSVIMYSVMNEPPSDIREVAEFIRREVELFKSLDS-SRPVTFASHR---
Thermotoga maritima (372) HPSVIMWSVANEPESNHPDAEGFFKALYETANEMDR-TRPVVMVSMMDAP
Lactobacillus gasseri (405) HPSVIAWSLFNEPESTTQESYDYFKDIFAFARKLDPQNRPYTGTLVMGS-
Escherichia coli (402) HPSVVMWSIANEPDTRPQGAREYFAPLAEATRKLDP-TRPITCVNVMFC-
Staphylococcus sp. (404) HPSVVMWSIANEAATEEEGAYEYFKPLVELTKELDPQKRPVTIVLFVMA-
Aspergillus nidulans (450) HPSVIMWSIANEPASDEPGARAYFEPLTRLARSLDPAHRPITFANLGLA-
Penicillium canescens (442) HASVVMWSIANEPASHEDGAREYFEPLTNLTRQLDPTR-PITFANVGTA-
Scopulariopsis sp. (439) HASVVSWCVTNEPASAEDGAREYFQPLVELTRELDP-TRPVTFTNVMGA-
Gibberella zeae (410) HPCVVMWMLANEPGASEQGSREYFEPLVTLARSLDSQKRPMCYSHMIHS-
Consensus (501) HPSVVMWSVANEP S A YFK LI TKALDP TRPVTFV

FIG.7K

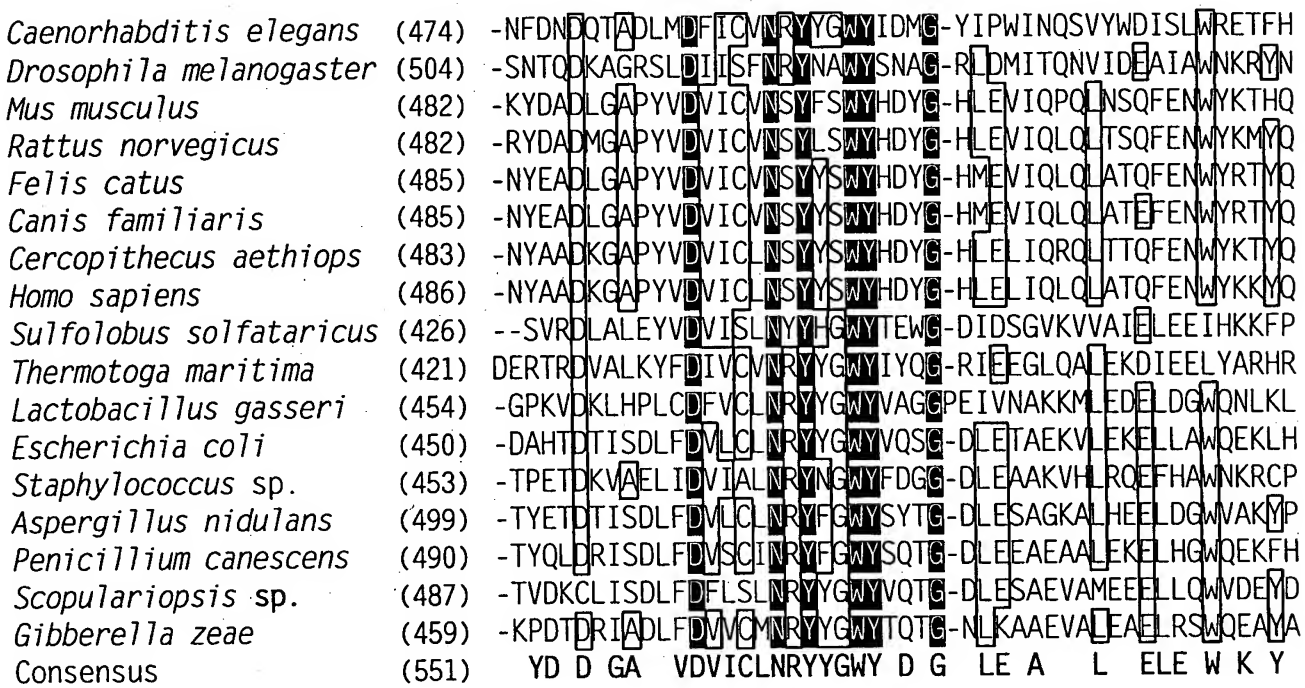
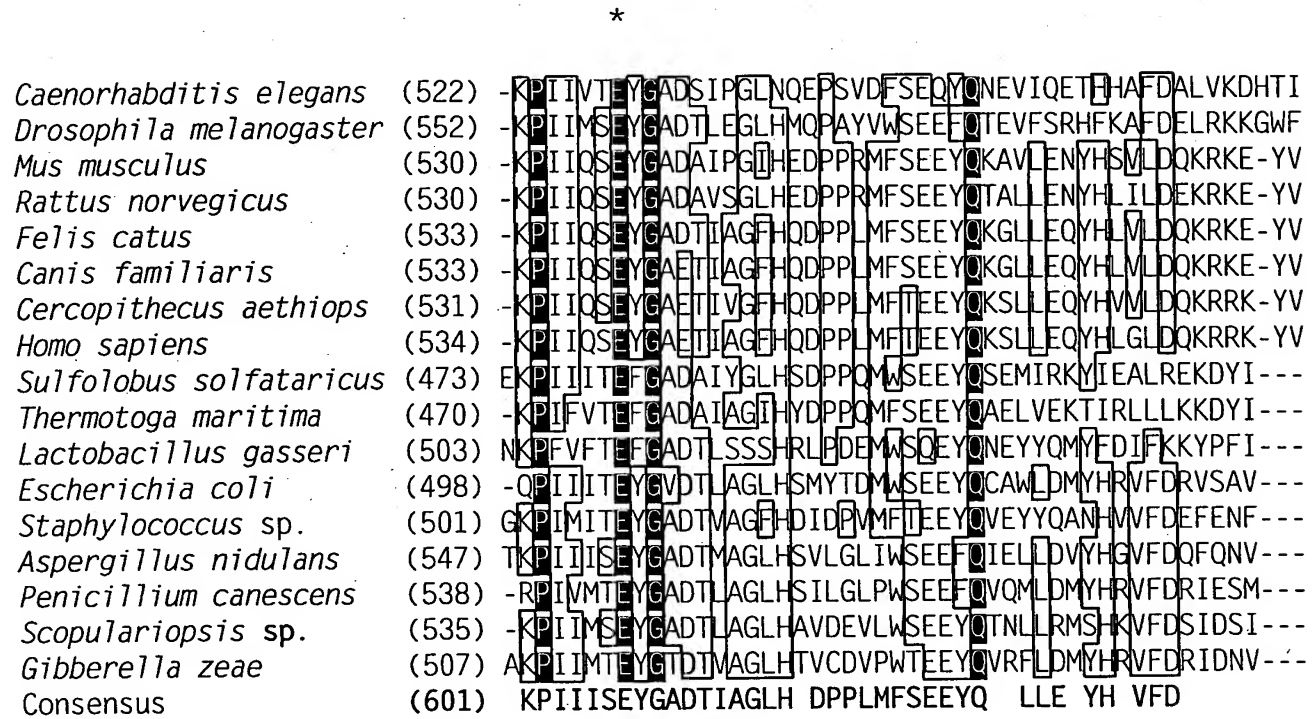

Caenorhabditis elegans (474) -NFDNDQTADLMDFICVNRYYGWYIDMG-YIPWINQSVYWDISLWRETFH
Drosophila melanogaster (504) -SNTQDKAGRSLDIISFNRYNAWYSNAG-RLDMITQNVIDEAIAWNKRYN
Mus musculus (482) -KYDADLGAPYVDVICVNSYFSWYHDYG-HLEVIQPQLNSQFENWYKTHQ
Rattus norvegicus (482) -RYDADMGAPYVDVICVNSYLSWYHDYG-HLEVIQLQLTSQFENWYKMYQ
Felis catus (485) -NYEADLGAPYVDVICVNSYYSWYHDYG-HMEVIQLQLATQFENWYRTYQ
Canis familiaris (485) -NYEADLGAPYVDVICVNSYYSWYHDYG-HMEVIQLQLATEFENWYRTYQ
Cercopithecus aethiops (483) -NYAADKGAPYVDVICLNSYYSWYHDYG-HLELIQRQLTTQFENWYKTYQ
Homo sapiens (486) -NYAADKGAPYVDVICLNSYYSWYHDYG-HLELIQLQLATQFENWYKKYQ
Sulfolobus solfataricus (426) --SVRDLALEYVDVISLNYYHGWYTEWG-DIDSGVKVVAIELEEIHKKFP
Thermotoga maritima (421) DERTRDVALKYFDIVCVNRYYGWYIYQG-RIEEGLQALEKDIEELYARHR
Lactobacillus gasseri (454) -GPKVDKLHPLCDFVCLNRYYGWYVAGGPEIVNAKKMLEDELDGWQNLKL
Escherichia coli (450) -DAHTDTISDLFDVLCLNRYYGWYVQSG-DLETAEKVLEKELLAWQEKLH
Staphylococcus sp. (453) -TPETDKVAELIDVIALNRYNGWYFDGG-DLEAAKVHLRQEFHAWNKRCP
Aspergillus nidulans (499) -TYETDTISDLFDVLCLNRYFGWYSYTG-DLESAGKALHEELDGWVAKYP
Penicillium canescens (490) -TYQLDRISDLFDVSCINRYFGWYSQTG-DLEEAEAALEKELHGWQEKFH
Scopulariopsis sp. (487) -TVDKCLISDLFDFLSLNRYYGWYVQTG-DLESAEVAMEEELLQWVDEYD
Gibberella zeae (459) -KPDTDRIADLFDVVCMNRYYGWYTQTG-NLKAAEVALEAELRSWQEAYA
Consensus (551) YD D GA VDVICLNRYYGWY D G LE A L ELE W K Y

FIG.7L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Caenorhabditis elegans (522) -KPIIVTEYGADSIPGLNQEPSVDFSEQYQNEVIQETHHAFDALVKDHTI
Drosophila melanogaster (552) -KPIIMSEYGADTLEGLHMQPAYVWSEEFQTEVFSRHFKAFDELRKKGWF
Mus musculus (530) -KPIIQSEYGADAIPGIHEDPPRMFSEEYQKAVLENYHSMLDQKRKE-YV
Rattus norvegicus (530) -KPIIQSEYGADAVSGLHEDPPRMFSEEYQTALLENYHLILDEKRKE-YV
Felis catus (533) -KPIIQSEYGADTIAGFHQDPPLMFSEEYQKGLLEQYHLVLDQKRKE-YV
Canis familiaris (533) -KPIIQSEYGAETIAGFHQDPPLMFSEEYQKGLLEQYHLVLDQKRKE-YV
Cercopithecus aethiops (531) -KPIIQSEYGAETIVGFHQDPPLMFTEEYQKSLLEQYHVVLDQKRRK-YV
Homo sapiens (534) -KPIIQSEYGAETIAGFHQDPPLMFTEEYQKSLLEQYHLGLDQKRRK-YV
Sulfolobus solfataricus (473) EKPIIITEFGADAIYGLHSDPPQMWSEEYQSEMIRKYIEALREKDYI---
Thermotoga maritima (470) -KPIFVTEFGADAIAGIHYDPPQMFSEEYQAELVEKTIRLLLKKDYI---
Lactobacillus gasseri (503) NKPFVFTEFGADTLSSSHRLPDEMWSQEYQNEYYQMYFDIFKKYPFI---
Escherichia coli (498) -QPIIITEYGVDTLAGLHSMYTDMWSEEYQCAWLDMYHRVFDRVSAV---
Staphylococcus sp. (501) GKPIMITEYGADTMAGFHDIDPVMFTEEYQVEYYQANHMVFDEFENF---
Aspergillus nidulans (547) TKPIIISEYGADTMAGLHSVLGLIWSEEFQIELLDVYHGVFDQFQNV---
Penicillium canescens (538) -RPIVMTEYGADTLAGLHSILGLPWSEEFQVQMLDMYHRVFDRIESM---
Scopulariopsis sp. (535) -KPIIMSEYGADTLAGLHAVDEVLWSEEYQTNLLRMSHKVFDSIDSI---
Gibberella zeae (507) AKPIIMTEYGTDTMAGLHTVCDVPWTEEYQVRFLDMYHRVFDRIDNV---
Consensus (601) KPIIISEYGADTIAGLH DPPLMFSEEYQ LLE YH VFD

FIG.7M

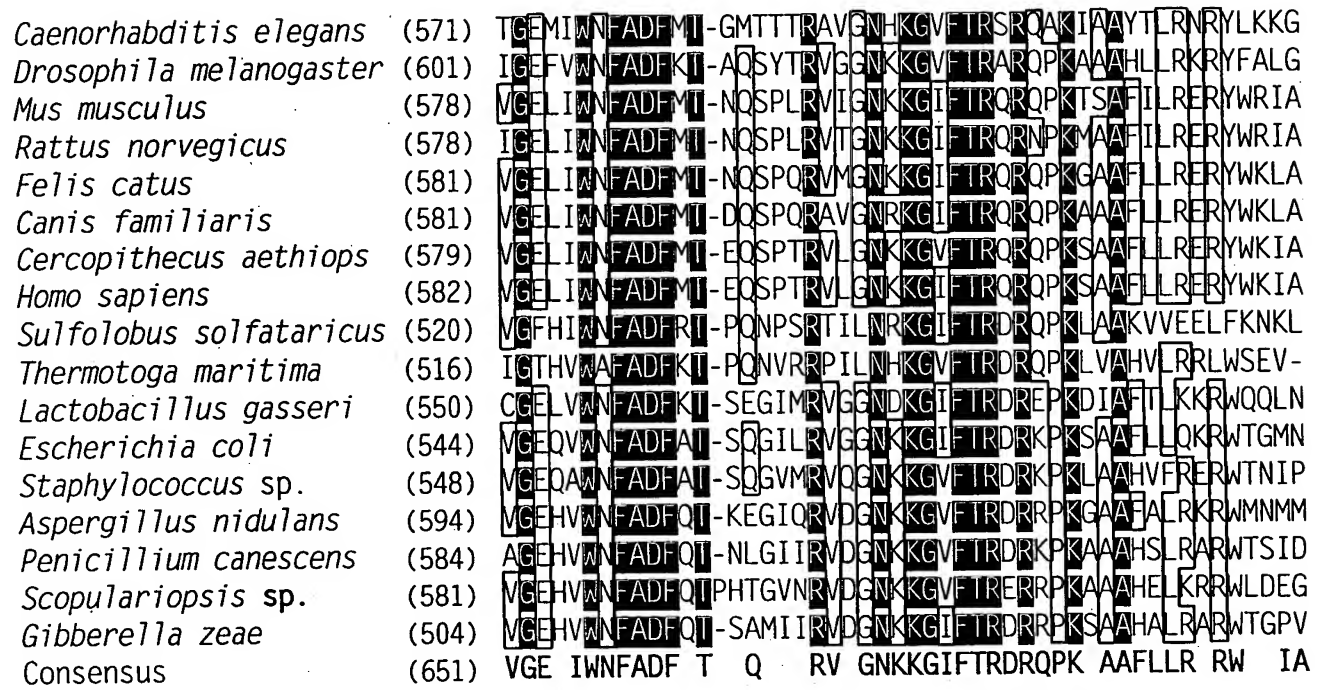
Caenorhabditis elegans (571) TGEMIWNFADFMI-GMTTTRAVGNHKGVFTRSRQAKIAAYTLRNRYLKKG
Drosophila melanogaster (601) IGEFVWNFADFKI-AQSYTRVGGNKKGVFTRARQPKAAAHLLRKRYFALG
Mus musculus (578) VGELIWNFADFMI-NQSPLRVIGNKKGIFTRQRQPKTSAFILRERYWRIA
Rattus norvegicus (578) IGELIWNFADFMI-NQSPLRVTGNKKGIFTRQRNPKMAAFILRERYWRIA
Felis catus (581) VGELIWNFADFMI-NQSPQRVMGNKKGIFTRQRQPKGAAFLLRERYWKLA
Canis familiaris (581) VGELIWNFADFMI-DQSPQRAVGNRKGIFTRQRQPKAAAFLLRERYWKLA
Cercopithecus aethiops (579) VGELIWNFADFMI-EQSPTRVLGNKKGVFTRQRQPKSAAFLLRERYWKIA
Homo sapiens (582) VGELIWNFADFMI-EQSPTRVLGNKKGIFTRQRQPKSAAFLLRERYWKIA
Sulfolobus solfataricus (520) VGFHIWNFADFRI-PQNPSRTILNRKGIFTRDRQPKLAAKVVEELFKNKL
Thermotoga maritima (516) IGTHVWAFADFKI-PQNVRRPILNHKGVFTRDRQPKLVAHVLRRLWSEV-
Lactobacillus gasseri (550) CGELVWNFADFKI-SEGIMRVGGNDKGIFTRDREPKDIAFTLKKRWQQLN
Escherichia coli (544) VGEQVWNFADFAI-SQGILRVGGNKKGIFTRDRKPKSAAFLLQKRWTGMN
Staphylococcus sp. (548) VGEQAWNFADFAI-SQGVMRVQGNKKGVFIRDRKPKLAAHVFRERWTNIP
Aspergillus nidulans (594) VGEHVWNFADFQI-KEGIQRVDGNKKGVFTRDRRPKGAAFALRKRWMNMM
Penicillium canescens (584) AGEHVWNFADFQI-NLGIIRVDGNKKGVFTRDRKPKAAAHSLRARWTSID
Scopulariopsis sp. (581) VGEHVWNFADFQIPHTGVNRVDGNKKGVFTRERRPKAAAHELKRRWLDEG
Gibberella zeae (504) VGEHVWNFADFQI-SAMIIRVDGNKKGIFTRDRRPKSAAHALRARWTGPV
Consensus (651) VGE IWNFADF T Q RV GNKKGIFTRDRQPK AAFLLR RW IA

FIG.7N

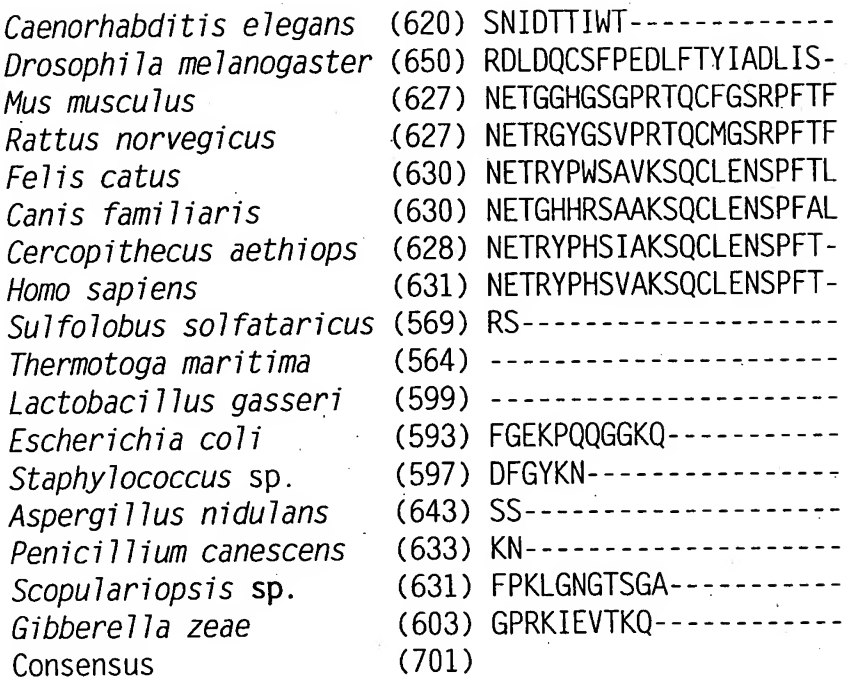
Caenorhabditis elegans (620) SNIDTTIWT----------
Drosophila melanogaster (650) RDLDQCSFPEDLFTYIADLIS-
Mus musculus (627) NETGGHGSGPRTQCFGSRPFTF
Rattus norvegicus (627) NETRGYGSVPRTQCMGSRPFTF
Felis catus (630) NETRYPWSAVKSQCLENSPFTL
Canis familiaris (630) NETGHHRSAAKSQCLENSPFAL
Cercopithecus aethiops (628) NETRYPHSIAKSQCLENSPFT-
Homo sapiens (631) NETRYPHSVAKSQCLENSPFT-
Sulfolobus solfataricus (569) RS----------
Thermotoga maritima (564) ----------
Lactobacillus gasseri (599) ----------
Escherichia coli (593) FGEKPQQGGKQ----------
Staphylococcus sp. (597) DFGYKN----------
Aspergillus nidulans (643) SS----------
Penicillium canescens (633) KN----------
Scopulariopsis sp. (631) FPKLGNGTSGA----------
Gibberella zeae (603) GPRKIEVTKQ----------
Consensus (701)

FIG.7O

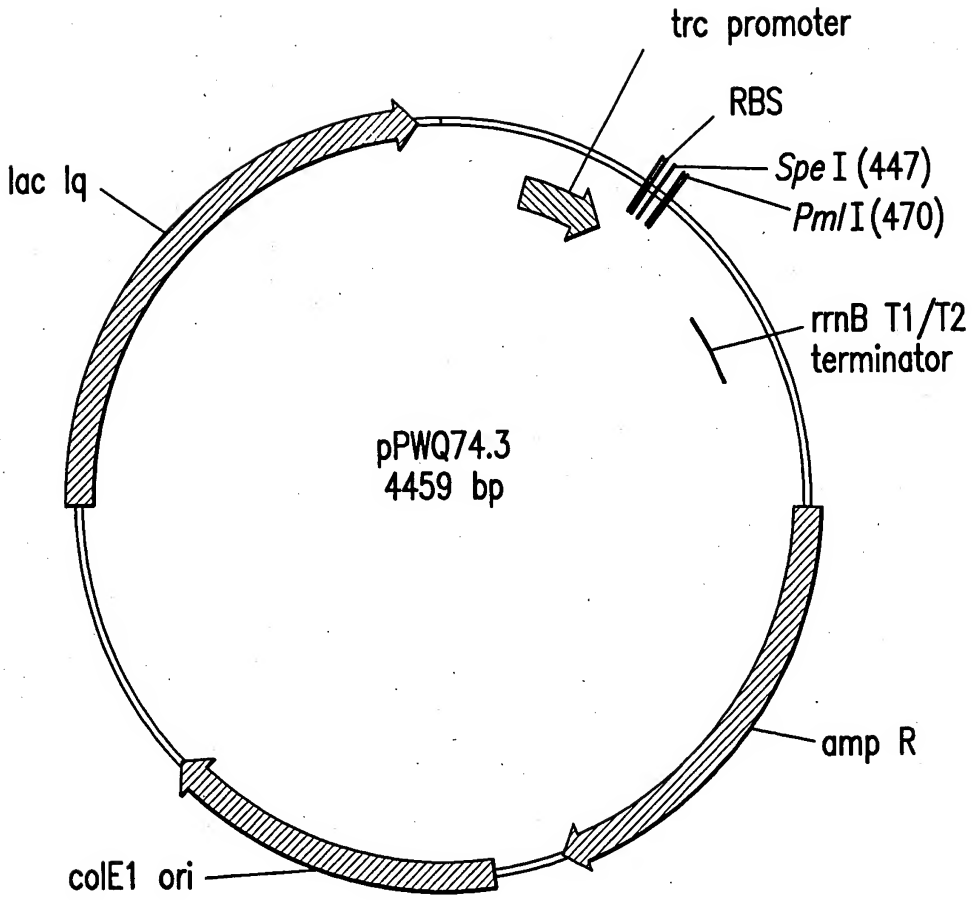
trc promoter
RBS
Spe I (447)
Pml I (470)
lac Iq
rrnB T1/T2
terminator
pPWQ74.3
4459 bp
amp R
colE1 ori

FIG.8

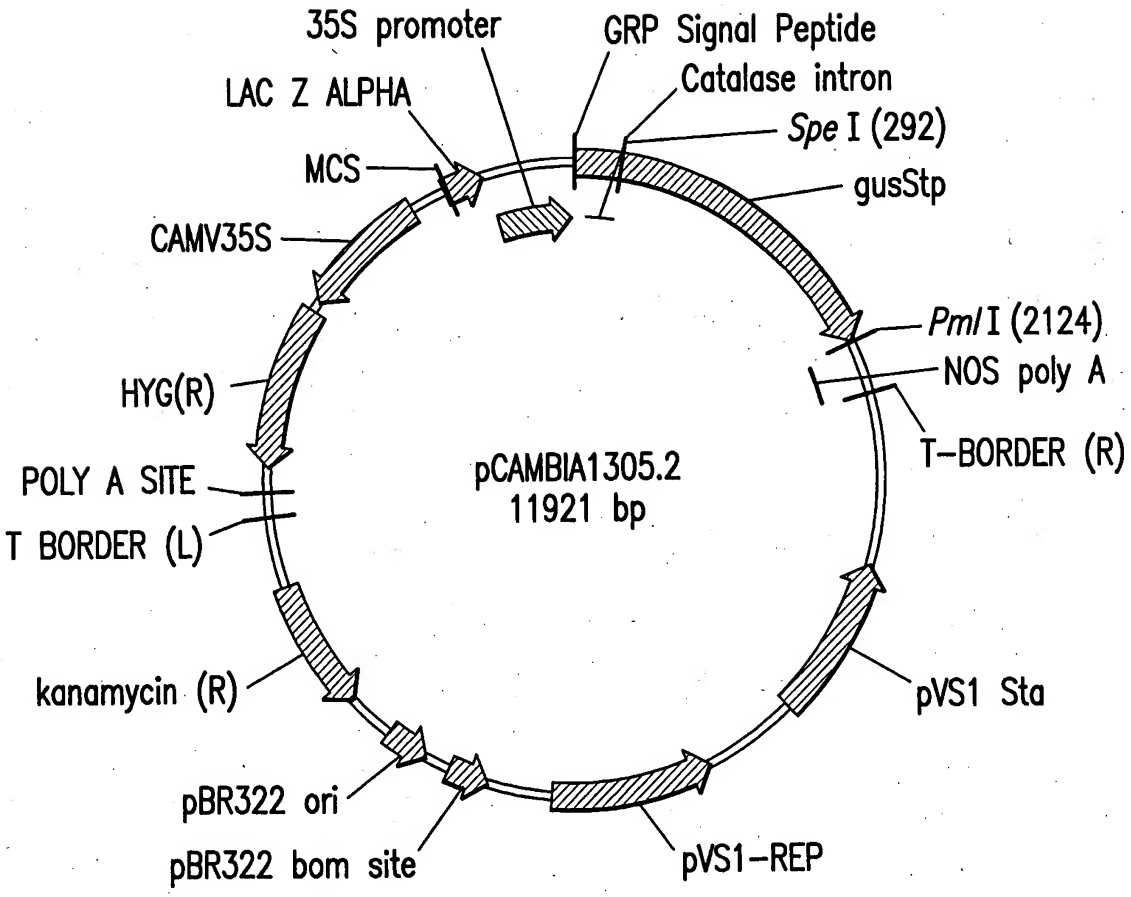
35S promoter
GRP Signal Peptide
Catalase intron
LAC Z ALPHA
Spe I (292)
MCS
gusStp
CAMV35S
PmlI (2124)
NOS poly A
HYG(R)
T-BORDER (R)
POLY A SITE
pCAMBIA1305.2
11921 bp
T BORDER (L)
kanamycin (R)
pVS1 Sta
pBR322 ori
pBR322 bom site
pVS1-REP

FIG.9

β-glucuronidase activity in leaves of rice T1 plants transformed with pPWT9.17

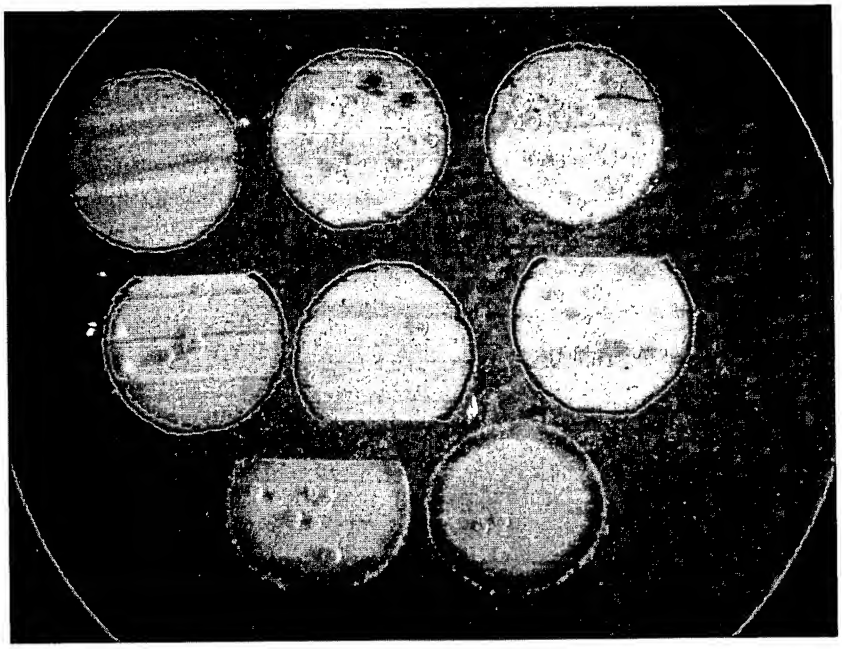

FIG.10A

Secreted β-glucuronidase activity in leaves of rice T1 plants transformed with pKKWA68.4 and pPWT9.17

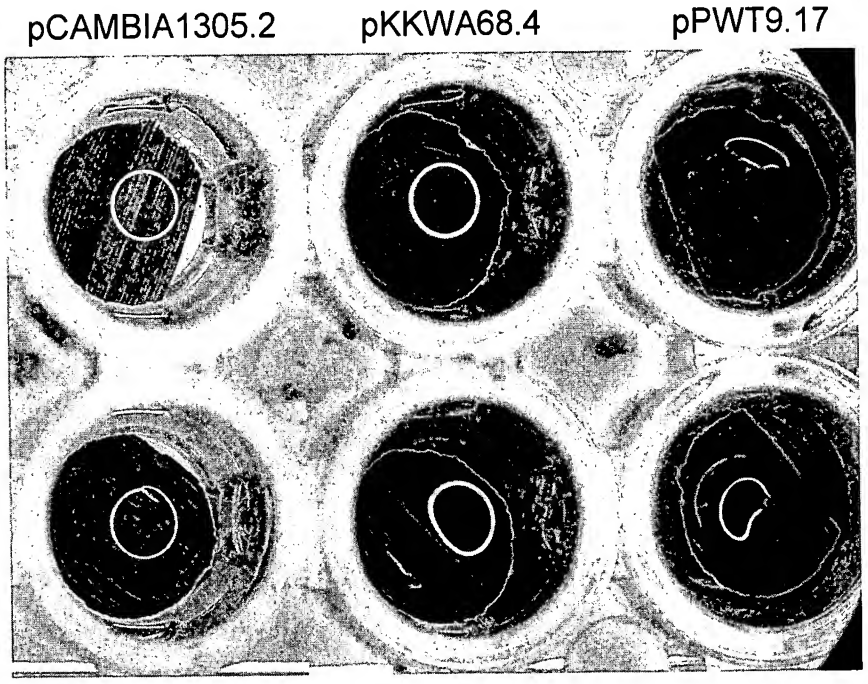

FIG.10B